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USSR Report

ECONOMIC AFFAIRS

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ECONOMIC POLICY, ORGANIZATION AND MANAGEMENT

ECONOMIC EXPERIMENTATION VIEWED

Aspects Explored

Moscow PRAVDA in Russian 28 Feb 83 p 2

[Article by Aleksandr Nikitin and Arkadiy Prigozhin: "The Discipline of an Experiment"]

[Text] At present it is difficult to find a sector or republic, in which the new methods of the organization and stimulation of labor, the management of associations, enterprises and brigades have not been tested. Such are the dictates of the times. And still economic experimentation needs a qualitatively higher level. For the experiment is an important and quite valuable tool of socioeconomic policy. It should be both precise and reliable.

The Main Attention Is to Principles

What is an economic experiment, in which new forms of business relations or unusual criteria of evaluation are tested? What are its ultimate goals? The opinions on this account are dispersed among different poles: from "we will try, we will see there" to "what will the indication be?"

Let us recall that in recent years several calibration and long-range experiments, which served as the basis for major and far-reaching innovations, have been conducted in the country. Here they are: the Shchekino method, the system of the Volga Motor Vehicle Plant, the regional agro-industrial association. Party and government decrees were adopted on them, measures were elaborated.

The search is being continued. For example, cost accounting forms of management at the level of the middle and highest unit of the sectorial structure are being tested. A new territorial subdivision for the management of the comprehensive economic and social development of the city is being tried in Poti. In Bratsk and Kotlas the USSR Ministry of the Timber, Pulp and Paper, and Wood Processing Industry is verifying the usefulness of new classifiers of management functions for various purposes. In Moscow, Leningrad, Kiev and Novosibirsk they are actively seeking new forms of the integration of science and production. Life is raising many questions, the discussion of which is very urgent.

First of all, what should be the object of experimentation? Many local decisions, which look useful, but are very limited with respect to their goals, are known. And this is quite explicable, since the different departments are forced to act only within the framework of their competence. But the 26th party congress and the November (1982) CPSU Central Committee Plenum called for the search for fundamentally new decisions. First of all the improvement of the very principles of management requires experiments.

For example, at present the majority of Belorussian construction workers have been changed over to settlements with the client for completely finished projects, that is, for the commodity production. But the commodity production of construction is not a particularity. It is of importance far beyond the construction project. The USSR Ministry of the Coal Industry changed over on a trial basis to the planning and accounting of the volume of output not in accordance with the total production of coal, as was previously the case, but in accordance with the coal, which has been freed of excessive gangue and has been readied for use. Hence, also in commercial terms. This principle is almost universal.

It would also be possible to use it for the evaluation of the work of geophysicists, having changed them over to pay, for example, not for the traversed kilometers of oil-bearing areas, but for the increase of the proved reserves of "live petroleum." This will interest them in the achievement of not the intermediate, but the end results. The principles of the independence of enterprises and the responsibility of management organs for the quality of their own decisions and other proposals need perfection everywhere.

The preparation of experiments should be oriented first of all toward comprehensive, fundamental innovations, including such innovations which in their importance are of the nature of a reform. Experience in implementing economic reforms at different stages of the socioeconomic development of society exists in our country. Under present conditions the importance of experiments for such a large-scale goal is especially great.

Typical and... Hothouse Conditions

It is more difficult to answer the question: Does an experiment need special conditions? On the one hand, privileged conditions make the results of an experiment overly effective and decrease the "survival rate" of an innovation under real conditions. But on the other....

The Ministry of Chemical and Petroleum Machine Building undertook an experiment on changing over to the supply of complete sets of equipment to its clients--the petroleum and gas industry workers. The usefulness of the initiative is so obvious that you will involuntarily have some doubts: Is it worthwhile to experiment? But, it turned out, it is worthwhile.

The ministry itself does not produce metal, instruments and much else. While wishing to check the possibility of its enterprises to assemble and install all the sets of equipment "at the output," should not the ministry even protect itself "at the input"? For what? In order to stimulate the interest of the workers of related industries and to insist on especially strict conditions of their deliveries. Indeed, without such precautions it was impossible to accomplish the basic task of the experiment--the delivery of complete sets of equipment.

Indeed, hothouse conditions can distort the results and complicate their objective evaluation. What is to be done? There is the following concept: the purity of the experiment. It signifies the need for the distinction, even the isolation of the basic content of the experiment. Here it is necessary to prevent accretions of extraneous circumstances.

The method of brigade cost accounting would hardly have arisen, if they had not ensured N. Zlobin the reliable supply of construction materials. Without this his brigade would not have been able to show the force of collective interest in the end result of its labor. Hence another important conclusion: the results of an experiment should be evaluated in conjunction with the conditions which are necessary for the dissemination of the innovation.

Thus, an experiment frequently makes rigorous demands on the related spheres of management, requiring the coordination of the number of workplaces and hands, the tightening up of the discipline of deliveries, the flexibility of financing and the responsibility of planning. And this is better confirmation of the truth that it is impossible to improve some one thing, while leaving the adjacent links unchanged.

Is it correct here to regard as useful only a positive result? A new method of stimulating labor productivity was tested in the USSR Ministry of Communications. If, for example, 90 percent of the increase of the volume of output was obtained by the increase of productivity, you receive an incentive from a special fund. But in practice the method did not justify itself, they rejected it. And it is impossible to regard this as a failure. Here not the reason, but the approach itself is important. In competently organized experiments a negative result is also valuable, since it completely "closes" one of the proposed versions. An experiment always contains an element of risk. But precisely this also frequently scares off those who are fond of holding a titmouse in their hand and not seeking the crane in the sky.

The purpose of an economic experiment is the appraisal of the consequences of some innovation. Desirable and harmful, anticipated and unforeseen consequences. Such an appraisal should provide grounds: Is the innovation to be accepted for dissemination, and if so, with what changes and on what conditions? A decision of this sort is also a result of the experiment. But the quality of the decision depends on how sound the appraisal of the consequences of the experimental innovation is.

Do we have today, for example, an adequately elaborated set of criteria and rules of the conducting of experiments and the determination of their results? Unfortunately, for the present this does not exist. The methods system is still in its infancy. Experiments are most often conducted at a guess, everywhere in different ways. In spite of the inordinately lengthy agreements of the conditions, no one guarantees their observance. Frequently they are changed at the very height of the experiment.

It often turns out that the experiment was as if conducted, sometimes was also widely acclaimed, but does not find dissemination. Or, on the contrary, it takes the form of a "perpetual experiment," wandering for many years among projects and always for the purpose of "approval."

Why do even such promising initiatives as, for example, the Shchekino method "suffocate"? Because the initial principles of their use do not endure. The instructions on the introduction of the Shchekino method were revised and altered seven times in the USSR State Committee for Labor and Social Problems. From this they became unwieldy and incomprehensible. Often precisely "specifying," "concretizing," "explanatory" documents reduce to naught the essence of an innovation.

Collectives are being placed under conditions, when an increase of labor productivity is demanded from them without its material backing. Let us recall that the Shchekino Azot Association was forced to rescind for 1,700 workers the raises and additional payments, which were due to them, for the broadening of the service zone and the combining of occupations. Doesn't this undermine confidence in what is new? And what, so to speak, is the overall results? First Secretary of the Shchekino City Party Committee G. Grotseskul responds:

"Due to the adjustments of the plans and the wage fund the Shchekino method is now not being used fully even at the enterprise which gave rise to it."

The lessons of the Shchekino movement require a fundamental review and the proper appraisal. Otherwise its fate also awaits future innovations. The topical word "discipline" should apply both to the experiment and to the dissemination of experience.

Does the Search Need a "Headquarters"?

Let us say frankly that it is hardly worth reducing everything to the creation of a unified center or to the adoption of the strictest method of economic experimentation. Excessive centralization and uniformity are even harmful for such a complex and at times unstabilized form of the management search. Practical experience shows: here much depends on the specific conditions, the personal characteristics of the initiators, the novelty and scale of the tasks. But simple and clear recommendations on the key principles of the conducting of economic experiments are necessary. The broader the search for that which is new, the more urgent the need for a scientifically sound and at the same time a realistic system of rules becomes.

These requirements are not always combined harmoniously. For example, scientists are for the procedural irreproachability of such experiments, while experienced workers are for simplified procedures and criteria. Perhaps, a third competent participant, who has the ability and, perhaps, the right to approve the conditions of the experiment, is needed?

An interdepartmental methods commission of the USSR State Planning Committee is working. It reviews the suggestions being received and makes decisions. But this commission assumes responsibility not for all the economic experiments being conducted in the country, but only for those which are connected with the improvement of planning. The other experiments, which are aimed, for example, at the improvement of material stimuli and wages in general, fall to the sphere of the USSR State Committee for Labor and Social Problems. A portion of the trial innovations are sanctioned by the USSR State Committee for Construction Affairs, others are sanctioned by republic organs.

At the same time the organization of economic experimentation, no matter where it is carried out, has general laws. And, very likely, experienced methods

specialists, who, moreover, have enough influence to observe if only such rules as the clear formulation of the task and the precise recording of the initial and achieved levels, will not yet be found in every department or region. It is impossible not to take into account similar experience in other places. The latest scientific developments must also be used on time.

In short, here the need for an all-union expert appraisal is obvious. And it is needed not so much for supervision as for assistance. A representative public council with advisory and consultative functions, for example, could carry it out. It should review the suggestions being received and along with departments and sectors announce competitions for the best of them. The council can rely on its founders--academic, sectorial and departmental organizations, the leading ministries and enterprises, specific specialists, enlisting them in the expert groups. Of course, there can also be other means.

And much has already been done. The first all-union applied science conference on these problems has been held. Scientific developments and drafts of methods have appeared. Mathematicians have made progress in the modeling of economic experiments with the aid of computers. The transformation of such sciences, which are concerned with management, as economics, sociology and law into experimental sciences, with the corresponding tasks and equipment must be expedited. Such is the social need, a kind of social order.

There is another aspect of the problem. Economic experiments require the active participation of party organs and trade unions. The initiators now need support and frequently protection as well. Innovators frequently "do not get involved" in the established norms and notions and attract increased and at times biased attention. The legal mechanism of experiments has not been adjusted. Under these conditions the role of public organizations is especially important.

The higher the level of experimentation is, the more productive the subsequent decisions will be. Such a dependence is being realized more and more widely. Some prospectors do not win victory.

Followup Reportage

Moscow PRAVDA in Russian 5 Jul 83 p 2

[Article by A. Nikitin and A. Prigozhin: "The Fates of Experiments"]

[Text] What new methods and forms of the management of the economy under present conditions is it necessary to introduce first of all? This question is constantly being posed in the letters of PRAVDA readers. Many of them display anxiety due to the slow rate of assimilation of advanced innovations and give suggestions on the improvement of the economic mechanism and the organization of labor in industry, agriculture, construction and transportation.

The statements of our newspaper with regard to economic experiments, including the economic survey "The Discipline of an Experiment" (PRAVDA, 28 February 1983), aroused appreciable interest among the readers. Scientists, economic managers and the workers of management organs are expressing their opinions. The authors of the received letters agree on one thing: the theory and practice of economic experimentation must be raised to a qualitatively new level.

What is meant here is the scientific substantiation of the need for such measures, their procedural support and, what is especially emphasized in the letters, the responsibility for the evaluation and dissemination of positive experience.

Here is how N. Trofimenko of Tiraspol expresses his anxiety about the fate of valuable initiatives. While expressing a high opinion of the idea of the experiment in the city of Poti of the Georgian SSR, where the effectiveness of the territorial intersectorial association is being developed, he writes: "And still the question: What next? is disturbing. Will, let us assume, the successful experiment become accessible to all or will it just remain merely a matter of the experimenters?"

The readers of the newspaper indicate the still inadequate resourcefulness of central economic organs, which have been given the rights of planning and the implementation of management innovations. Kievan Yu. Semenov, for example, regards as obvious the fact that the shortage of workers in the national economy is a consequence of the low productivity and backward organization of labor. And serious experiments are needed precisely in this area of the economy. At the same time, he writes, the USSR State Committee for Labor and Social Problems in this matter "is still not at its best." There are also many reproaches in this connection which are meant for the workers of the State Planning Committee of the country.

The formation of economic research in conformity with the requirements of the day first of all depends precisely on them. The proposals of ministries and departments on the testing of specific innovations are being received by these organs.

But what are the key demands on the programs of the implementation of experiments? What is the procedural base of their selection, preparation, conducting and completion? One must not, indeed, avoid answering these and many other questions. And the farther things go, the greater urgency they acquire. Therefore the search in this direction, of course, should be stepped up.

In part such work is already being performed. In a number of places enterprising groups of specialists are elaborating methods of the computer modeling of experiments in the area of the management of the economy--for example, at the Siberian Department of the USSR Academy of Sciences. The organizational and legal mechanism of such measures is being studied, it is true, not very actively at the Institute of State and Law.

Interesting opinions on this are contained in the letter of A. Reyner, the director of the fruit and vegetable trade organization of the city of Tallinn. While fully supporting the statement by PRAVDA of the problems of the improvement of the economic mechanism, he dwells specially on the question of the regulations of the experiment. A draft of procedural instructions on economic experimentation was prepared by him jointly with his colleague Yu. Vooglayd. In it the set of tasks characteristic of the latter is specified, a system of the breakdown of "roles" among the participating organizations is proposed, procedures of its implementation are given. Apparently, the draft can play a useful role when drawing up advisory documents on the all-union level.

In short, something is being done. It seems that the Interdepartmental Commission of the USSR State Planning Committee could already now unite the uncoordinated efforts of specialists for the preparation of a statute on the conducting of economic

experiments. It is gratifying to note that recently a document, which regulates the procedure of the planning and conducting of economic experiments in construction, was approved in the USSR State Committee for Construction Affairs--PRAVDA wrote about its need in the publications "Fighting Reconnaissance" and "The Economic Search" (14 April and 5 December 1982).

Of course, the opinions of the readers also differ in some things. By no means everyone also agrees with the authors of the statement in PRAVDA. One of the most controversial questions is: How is one to supervise the testing of what is new in the management of the economy? This is spoken about in nearly every letter.

Of course, in such an important matter definite coordination is necessary, the prompt, thorough generalization of experience is also desirable. But the danger of high-handed action is also perceptible here. The idea: if a problem arises, create an organization! is still very tenacious in our country. And, indeed, the economic history of our country knows many examples of precisely such a method of solving problems. But not all of them were successful. A fundamental aspect of the matter is that this is an extensive means of the development of management.

Let us try merely to imagine how such a new department would begin to coordinate its steps with the numerous organs, which have been operating already for a long time and realistically and which are also responsible for the improvement of the economic mechanism. It seems that it would be more correct to believe that first of all those who actually carry them out should update the methods and forms of planning and management. The piling up of newer and newer structures can only intensify the bureaucratization of ties, which at times are inflexible as it is.

And here it is impossible, very likely, to deny the correctness of Muscovite V. Akinin, who in his letter insists on the introduction of the standardized regulation of the activity on experimentation.

At the same time the idea that under the present conditions of universal interdependence in the national economic organism it is no longer sufficient to raise the question of changes of any one indicator of organizational form, is repeated in many letters to the editorial board. Why?

The introduction of one partial innovation inevitably entails the rearrangement of the related structures of management and causes waves of other, at times unforeseen consequences. Such are the peculiarities of the present tasks of the improvement of management. Now, when the need for the improvement of the mechanism of management was noted at the June Plenum of the party Central Committee, it is important, very likely, to talk about its large-scale and thorough reorganization, which by its nature is equivalent to a reform. Competently organized, responsibly conducted experiments should also play an important role in its preparation and implementation. Some prospectors, as is known, do not win victory, but they do indicate the most correct means to it.

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CSO: 1820/151

ECONOMIC POLICY, ORGANIZATION AND MANAGEMENT

ECONOMIC INCENTIVES FOR DESIGN ORGANIZATIONS

Moscow PRAVDA in Russian 6 Jul 83 p 2

[Article by construction engineer P. Degtyarev (Moscow): "Not in Pursuit, But Surpassing"]

[Text] For a long time they said to designers: it is necessary to build industrial projects no worse than the best models. Now this requirement in light of the decisions of the November (1982) CPSU Central Committee Plenum seems liberal. The 1980's should be a period of the intensive development of the national economy. Thus, it is necessary to increase the production potential on a qualitatively new technical basis and to build projects which do not "pursue," but "surpass" the former achievements of science and technology. How are the designers, who are at the source of construction projects, accomplishing this task?

Several years ago the Ukrainian SSR State Institute for the Planning of Metallurgical Plants worked out the design of the Moldavian Metallurgical Plant, which is already acquiring visible features. But not everything in it gives pleasure. Bulky, heavy equipment was used, which made it incumbent to increase the production areas by 40,000 m². The labor productivity will be one-fifth less than at analogous modern plants. As a result the new plant will produce less output.

At times they repeat yesterday not only in ferrous metallurgy. As the check of the Main Administration of State Experts of the USSR State Committee for Construction Affairs showed, many designs of construction projects of various sectors do not contain substantial novelty. Frequently their estimated cost is overstated, but it does not cover the expenditures. This upsets planning, material and technical supply and the organization of construction. It is difficult even to imagine all the harm which is done by mediocre designs.

Why is the quality of designing at times the Achilles' heel of capital construction and why does it hinder scientific and technical progress in the sectors of the national economy? One of the causes of this is the weakness of the mechanism of economic stimulation. Today the cost of a design does not change subject to its quality. Such is the order of things. Hence, its authors may also not exert additional efforts on the search for the best decisions. Moreover, frequently the institutes due to errors in planning get into a "dire" situation. The plan for the year is approved for them with a great delay--in February, March. But by 1 July it is necessary to turn over to the client the working documents for construction during the next year. Here haste arises.

One should hardly be proud, as some people are, of the fact that we have the least expensive designs in the world--their price comes to 1-2 percent of the cost of projects. If we turn to world experience, we will see that there the expenditures on designing amount to 10-15 percent of the total investments. And this is justified--careful design study almost always turns into a saving for the construction project as a whole.

One cannot escape the discussion of the price of a design also for another reason. Two years ago a portion of the documents were deemed unnecessary. The concepts "technical design" and "technical and economic substantiations" were excluded from use. Now they prepare designs (in case of a two-stage process) and detail designs (in case of a one-stage process). This stems from the aspiration to organize efficiently predesigning and designing. But in practice the new procedure for the present has turned into additional difficulties. The price of a design, which is low as it is, was decreased by another 40 percent. It is believed that the clients are obligated to perform a portion of the work. But they do not always do this.

The fact that the preparation for the construction of production complexes has become complicated and more thorough variant studies are required, is also not properly taken into account in today's price. As a result crude technical specifications are getting to the construction sites. In particular, the experiment of the Leningrad construction workers confirms this. In the Main Administration for Construction in Western Regions they set up their own bureau of expert appraisal. They began to check the products of the institutes and found that very often it is possible to improve the design decisions of new enterprises and to decrease the cost of construction of many of them on the average by 10 percent. This is tens, if not hundreds of millions of rubles. So is it worth being proud of the inexpensiveness of designs?!

Not everything is okay with the training of designers. At present two-thirds of the composition of the institutes--the graduates, more precisely, the female graduates of higher educational institutions--are people who have not become absorbed in production life. Experienced specialists and scientists strive to work at higher educational institutions, scientific research institutes and contracting organizations. Among the main design engineers it is difficult to find candidates of sciences, all the more so doctors of sciences.

It is a question, of course, not of the mechanical increase of the stimulation of labor, the increase of the wage fund for designers. Reserves must be sought by other means. For example, why not adopt the well-known Shchekino method of the organization of and payment for labor? It makes it possible to increase the material interest of specialists and to make it directly dependent on the end results. But does the enormous saving of resources, which can be obtained owing to the mass search for the best design decisions, really not have the right to be a source of the increase of wages?

Today at design institutes they are using a system of economic stimulation, which is called the new system, although it was elaborated in the late 1960's. They call it this, very likely, because, having paved the way for it with extreme difficulty, only last year did they finally finish introducing it in practice.

Now it has turned out that this system is of little use. Its basic drawback is that it does not dispose the developers to produce designs which meet the highest demands. And it is no wonder: for the share of the bonus assets for the main--the qualitative--indicators comes to only about 10 percent of the material incentive fund. This fund for the most part is formed from the profit which is received for the quantitative indicators. That is, the more assets there are, which were received for all the work without regard for its quality, the better the activity of the collective will appear. Well, it is possible to receive the ideal assets in most instances only at the last stage of designing--for the preparation of the working documents, the provision of assistance to the construction workers when putting projects into operation and other services.

It is also impossible not to direct attention to the following flaw of the system. The institutes place the assets, which were received for ostensibly high quality, into a common "pot," pool them and turn them into a bonus for the good financial and economic activity of the subdivisions. So, with the exception of individual instances no one specifically is commended materially for high quality indicators.

And they call the registration of the bonus an ordeal. Disputes frequently arise when examining the quality of the documents--there are no precise criteria. The developers have to ask the clients to give a rating to the work--in the enforceable enactments there is no indication that they are obliged to do this. Moreover, if the client deems the work to be excellent, he will have to pay a bonus from the net surplus of assets with respect to the consolidated estimate, but there is almost always not enough of them.

It is also advantageous for the client to avoid the evaluation indicator for another reason. But later, in the process of the operation of the project, errors will suddenly be detected in the design, which was deemed excellent. It will be necessary to answer for this.

In short, the "new" system of economic stimulation gives little incentive to seek the optimum design decisions. But meanwhile as a whole the bonuses for the designers are decent: about 200 million rubles are spent on them. This is a seventh of the wage. And it is important for these millions to help not simply to produce the technical specifications on time, although this is also necessary, but also to develop designs of enterprises, which considerably surpass the present level in their technical parameters.

At present steps are being taken to improve material incentives. A search for more perfect systems is being made in the design organizations of Moscow, Leningrad and Minsk. This, of course, is pleasing. The fact that the versions being prepared do not lead to the radical improvement of the stimulation of the labor of designers is disturbing. Although some do devote more attention to the quality of development, still they rely for the most part on the gross indicators. Others aim only at the improvement of the construction portion of the designs, meanwhile when creating production capacities the technological "filling" is the main thing.

But, perhaps, it is worth solving the problem in a different way? The directive organ approves only the general provisions (extensive instructions, which are mandatory for all sectors, are now in effect). The basic criteria of the evaluation of the designs are established in them. Here it is indicated that those who

produce designs, which surpass in their qualitative content the best analogues and make it possible to advance along the path of technical progress, deserve material incentives.

Apparently, in the general provisions it is expedient to specify the reliable sources of the formation of the material incentive funds and the responsibility of the designers for the adopted decision. And, of course, the term of effect of the system, obviously, should encompass approximately 5 years, so that the stimuli would keep pace with life. On the basis of such general provisions the ministries and departments, which have design and surveying organizations, will establish their own procedure of material stimulation. Such an arrangement of stimulation will make it possible to take more completely into account the sectorial conditions and the creative output of collectives and individual workers.

Arguments are going on among specialists: Is it necessary and is it possible to check experimentally the new principles of the system of stimulation? Some deny the need for this: the investment process, they say, is too long--10-15 years pass from the start of the designing to the placement of the project into operation and the assimilation of its rated capacity. But at the same time they propose to pay the bonuses in full after the same period--try to wait until this moment!

It seems that much less time is required for the testing in practice of the principles of the new system. Is it really impossible to experiment when building small projects? And, in generally, is it necessary to orient the stimuli toward the long period of designing and construction?

The fact that the search is being made in an uncoordinated manner and slowly, is alarming. The institutes should already have changed over to the new conditions of stimulation this year. Time has slipped pass. But the delay should not lead to thoughtless haste. Let the old lesson, when they introduced the imperfect system eagerly and doggedly, caution against this.

It is possible, in the opinion of specialists, to expedite the preparation of an important document, if the one who has been charged to answer to the quality of designing--the USSR State Committee for Construction Affairs--is made responsible for this. Moreover, this department is, so to speak, neutral. It is easier for it to display objectivity when evaluating design decisions and to defend state interests. And in the end to try to see to it that the enterprises of the future would be built not in pursuit, but ahead of the present equipment and technology.

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PLANNING AND PLAN IMPLEMENTATION

SUPPLY AUTHORIZATIONS IN GOAL PROGRAM PLANNING

Moscow EKONOMICHESKAYA GAZETA in Russian No 24, Jun 83 p 15

[Article by V. Shalimov, deputy chief of a chair of Moscow State University imeni M. V. Lomonosov: "The Methods of Goal Program Planning"]

[Text] At the beginning of the current five-year plan 15 machine building ministries were using quite extensively cost accounting systems of the management of scientific and technical progress. The use of supply authorizations became the basic component of such systems. This planning document is, in essence, an intrasectorial scientific and technical program. The end results of the work on new equipment, including the economic impact for the national economy, the performers and dates of the work at all its stages, as well as the necessary resources, the amounts and sources of financing and material incentives are specified in it. Only the basic scheme of planning within the framework of supply authorizations is specified by the decree on the economic mechanism, which was adopted in July 1979. And at present the urgent need has arisen for the corresponding elaboration, which specifies uniform principles of their elaboration and functioning in industry.

Model Supply Authorizations

The supply authorizations and their modifications (thematic cards, plan-orders), which are used in the Ministry of the Electrical Equipment Industry, the Ministry of Heavy and Transport Machine Building, the Ministry of Power Machine Building and the Ministry of Tractor and Agricultural Machine Building, ensure the continuity of the work, from scientific research to the development and assimilation in production or the delivery to clients of items, sets and systems of equipment or to the introduction of progressive technological processes and advanced methods of the organization of production. The principles of the goal program approach are also being implemented quite thoroughly, since the resources, the content of the work, the composition of the performers and the end results are specified at the stage of planning.

At the same time the analysis shows that different sets of planned indicators and methods of their calculation are being used in the sectors. For example, in the Ministry of Heavy and Transport Machine Building and the Ministry of Power Machine Building the limit price for new items being developed and the profit on operations, which are performed by scientific research institutes and design bureaus on the basis of economic contracts, are established, in the Ministry of the Chemical Industry--the anticipated scientific and technical level of development. It is advisable to change over to planning which is based on uniform model supply authorizations (contracts). This will make it possible in all sectors of industry in case

of the changeover to the cost accounting system of the organization of the work on new equipment to achieve the procedural unity of all its components.

The indicators, which could be planned in the model supply authorizations, can be grouped in three sections. First, those which characterize the entire theme as a whole--the goals and tasks of the development, the area of use, the economic impact, the quality category, the time of fulfillment, the amount of the expenditures and their sources, the incentive assets. Second, the indicators which reflect the content of each stage of the work. And, third, the indicators which give a detailed characterization of the economic impact from the use of the object of development, as well as the technical and economic parameters of the new equipment as compared with the best domestic and foreign analogues.

The analysis shows that certain general drawbacks, which it is desirable to avoid when drawing up the supply authorizations (contracts), are inherent in the sectorial systems.

Thus, the amount of financing, which is necessary for the performance of work on the development and assimilation of a new item only prior to the start of series production, is usually indicated. But the expenditures on the offsetting of the increased expenditures of the first and, in individual instances (with the permission of the ministry), the second year of the series, mass production of a new or modernized product are not taken into account in these assets.

In our opinion, the complete offsetting by associations and enterprises of the increased expenditures of assimilation and the first period of series production is possible only if the assets required for this become the object of planned regulation and monitoring. It would be possible to determine them on the basis of the standards and to include them in the amount of financing, which is indicated in the supply authorization.

The sphere of effect of the supply authorizations (contracts) now being used extends, as is known, to the stage of the production of prototypes or the trial run. In this connection the carrying out of the planned monitoring of the timely transfer of the results of completed developments to the series production of new equipment is encountering difficulties. In the supply authorization it is expedient to indicate the enterprise, at which it is planned to produce the new equipment or to use the technological process. This will make it possible to perform work in conformity with the real conditions of specific enterprises and to speed up the process of the use of developments. In turn, the associations and enterprises as the future producers of the new equipment will obtain the opportunity for the preparation of production. It seems necessary also to determine the anticipated output of new items or the volume of production of products on the basis of advanced technology at every association and enterprise.

The achievement of the planned economic parameters of the new equipment in the sphere of consumption involves additional expenditures of the producer. It is necessary to take them into account in the supply authorizations. At the same time the establishment in them of the specific conditions of the use of the new equipment will make it possible to take into account the objective different efficiency of its use in different sectors of the national economy and to make substantially more precise the calculations of the total economic impact for the national economy.

The Standard Period of Assimilation

At present the duration of the process of the assimilation of series production, as well as the level and dynamics of the technical and economic parameters of the new equipment during this period (its productivity, production cost and so forth) are not planned in the supply authorizations. The establishment of the planned (standard) length of the period of the assimilation of the series, mass production of new equipment and the consideration of the actual length of this period would be very useful. It is also desirable to indicate the most important technical and economic parameters of the new equipment at the beginning and end of the period of assimilation. The use of such additional planning and accounting indicators will undoubtedly help to adhere to the standards of assimilation and to obtain the maximum national economic impact from the production and use of the new equipment.

The indicator of the anticipated economic impact, on the basis of which the theme is included in the plan, as a rule, is used in the planning and evaluation of the work on the development of science and technology. As practice attests, the indicator of the anticipated impact, which is recorded in the supply authorization, in practice is not revised before the conclusion of the development being planned. However, on the basis of it the version of the development of new equipment is chosen, the limit price is approved and the fixed wholesale price with the incentive markup is calculated, the stimulation of the developers of the theme is carried out by means of an advance, which is included in the estimated cost, if the period of development and industrial assimilation and the introduction of the new equipment does not exceed 2 years. This indicator is used in case of the planning estimates of the deductions for the economic stimulation funds of scientific research institutes, design bureaus and enterprises and the determination of their actual amounts, the stimulation of workers for the development, assimilation and introduction of new equipment. The specific indicator of the anticipated economic impact thereby performs a number of functions which are not characteristic of it.

It is necessary, evidently, to reflect in the supply authorizations not only the anticipated, but also both the planned and the actual economic impact.

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PLANNING AND PLAN IMPLEMENTATION

METHODOLOGICAL PROBLEMS OF PLANNING EXAMINED

Moscow PRAVDA in Russian 22 Jul 83 p 2

[Article by S. Starostin and G. Emdin: "By Each Line of the Plan"]

[Text] The drafting of the general economic plan, in which the goals of the development of the Soviet economy and the means of their achievement are formulated and substantiated scientifically, is the starting point of the implementation of the economic policy of the CPSU. V. I. Lenin called such a plan "an assignment for the proletariat."

The state plan is an infeasible law. A law for everyone, for it coordinates the efforts of all the members of society and concentrates enormous material, manpower and financial resources on the decisive, key sections of the drive for new gains.

In an economy based on a unified plan every link of the economic system--be it a ministry, a territorial unit, an association, an enterprise or a scientific institution--bears full responsibility for the unconditional fulfillment of the assignment which was approved for it. "Everything that has been decided should be fulfilled. This is the Leninist tradition of our party, and it is unbecoming of us to deviate from it," thus General Secretary of the CPSU Central Committee Comrade Yu. V. Andropov posed the question of executive, planning discipline.

Of course, for the successful fulfillment of the plan directive it is necessary for an atmosphere of great organization, mutual demandingness and efficiency, which stimulates the creative search for reserves of the more efficient use of labor, production capacities, raw materials, materials and fuels, to reign in the labor collectives.

Moreover, given the present scale of social production and the intensification of its specialization and cooperation, economic relations are branching out so much that the violation of planning discipline in one sector or the arbitrary adjustment of the assignments in another is fraught with serious consequences for the operation of related works and affects keenly the balance of the sectors and spheres of the national economy.

Everything that has been said is quite well known, and we are recalling this for the reason that, in our opinion, the demands on the observance of planning discipline as the key component of state discipline in many instances have been weakened. The deviations from it are frequently accepted without particular alarm.

The importance of the fulfillment by all enterprises and organizations of the assignments on deliveries of products in the established volumes and in accordance with the established products list is indicated in a recently adopted decree of the CPSU Central Committee and the USSR Council of Ministers. The establishment of strict order and discipline in the observance of contractual obligations is one of the decisive conditions of the implementation of the policy of the intensive development of the economy and the increase of its efficiency.

For the present in the sectors of industry, construction, agriculture and transportation a large portion of the enterprises are not coping with the plan of production and deliveries. The types of products, which failed to be supplied to the state as compared with the plan--coal, metal, timber, items of chemistry, machine building, light industry--are listed every time in the periodically published reports of statistical organs (with, perhaps, excessive dryness, without proper analysis and the indication of the main parties to blame for the frustration of the assignments). The lag affects not only the production of output in physical units, but also the qualitative characteristics of work, first of all the level of labor productivity, the basic increase of which is a key task. Unfortunately, this main indicator is increasing at a rate which cannot satisfy us, while the plans are being fulfilled at the cost of great expenditures and production costs.

In justification of the frustration of the assignments on the production of output and the increase of production efficiency economic managers at times, instead of improving the organization of labor and the selection of personnel, cite the errors of planning organs and ministries, the lack of supply with resources and the imperfection of the prevailing technical and economic indicators, norms and standards and the methods of evaluating the activity of enterprises and sectors. Many opinions on this theme, which justify the "forced" violations of planning discipline and contractual obligations, are also encountered on the pages of the press. And, let us say frankly, they are far from always convincing and pertinent.

There are no doubts about the importance of the improvement of planning and the entire sphere of the management of the economy. Much purposeful work is being carried out in this direction. New evidence of this is the decree of the CPSU Central Committee and the USSR Council of Ministers, in which additional measures on the broadening of the rights of the production associations (enterprises) of industry in planning and economic operations, on the further improvement and strengthening of the centralized management of the economy in combination with the development of the democratic principles in the management of the national economy are envisaged.

While gradually improving the methods of managing the economy at all levels, one must not allow attempts to belittle the obligatory force of the approved state plans by references to ostensibly unfavorable conditions. It is also impossible to tolerate the aspiration to avoid responsibility for the entrusted production assignment, by covering oneself with a shield made of "objective" factors or shortcomings of management.

The statements of some economists, who claim that due to the imperfection of the economic mechanism many economic managers are now "at the crossroads," seem strange. Are there grounds for such pessimistic conclusions? It seems that there are not. Experience shows that in the overwhelming majority of cases the nonfulfillment of the plans occurs for subjective reasons, the roots of which lie in the poor

organization of the matter, the lack of discipline, the incompetence of officials, their inability to ensure the proper use of manpower and material resources and to organize the precise interaction of all the components of production, in the lack of a sense of responsibility and duty to the state. How often enterprises, which have equal opportunities, display far from equal results!

Of course, difficulties and previously unforeseen circumstances inevitably arise in the real process of production. They influence, at times very appreciably, the progress of work. And here it is extremely important to adhere firmly to Lenin's principle of "fearless foresight of the future and bold practical activity, which is aimed at its accomplishment." This also implies the well-thought out organization of the fulfillment of the plan, the creation of the material and moral prerequisites for this, the launching of competition for the identification and use of the reserves of economy and the ability to overcome difficulties and to display the flexibility of production and economic maneuvering, having made the national economic interests the cornerstone.

Far from all managers are up to this. Many enterprises, which for a long time lagged behind the assignments of the plan on the production and deliveries of products and on the indicators of efficiency, which, after the management of them was strengthened by competent specialists who were endowed with a great sense of responsibility for the assigned manner and gradually entered a normal labor rhythm, are named in the press. The need for the search for justifications of poor work and complaints about "the groundless strenuousness" of the plan disappeared of itself.

That is why the fundamental importance of Lenin's indication of the need "to organize extensively, in a planned manner, systematically **AND OPENLY** [in boldface] the matter of the selection of the best workers in economic construction, administrators and organizers of a special and general, local and statewide scale" is also so important today (perhaps, more than ever).

Here is something else I would like to speak about. The improvement of the quality of planning and its reliable technical and economic substantiation remain, as was already noted, a task of paramount importance. And in essence it was such during the entire history of the planned economy, for it was also necessary to adapt the forms and methods of management to the demands which were made on the achieved level of the material, technical, social and spiritual development of Soviet society. It is difficult to imagine "sterile" conditions of economic operations, but the accomplishment of an ideal plan, which envisages everything in fine detail; a plan, the fulfillment of which would come without any efforts, almost automatically, is just as doubtful. The placing of trust only in ideal plans and an irreproachably organized economic mechanism is simply naive. It demoralizes and inspires illusions of an easy life.

Incidentally, the placing of trust in a "self-regulating" economy and in the automatism of the effect of the objective laws of socialism is no less groundless. The idea that the economy itself, owing to the effect of these objective laws will progress, is very far from reality. The objective laws of socialism manifest themselves in the creative, purposefully organized activity of the masses. And here it is important to place the emphasis on the role of managers and the collectives headed by them in the knowledge and use of these laws. In other words, on the

subjective factor, on the labor activeness, organization and responsibility of all the participants in social production.

The state approach to the state assignment is incompatible with any tricks, additions, the mutual "indulgences" of partners, inflated returns and so forth. The slightest deviations from legality, even if they are motivated by "the interests of the matter," are intolerable, since they not only weaken and undermine the mobilizing role of the plan and disorganize the economy, but also do moral harm to society and encourage libertarianism, appeasement and dodging. The plan, its indicators and the means of its fulfillment are simultaneously both economic and moral and ethical guidelines, which are closely linked with civic spirit and responsibility to society.

It is important to see to it that the system of indicators of the plan and the evaluation of the activity of enterprises, associations and ministries, which is aimed at the stimulation of their initiative and the achievement of the highest end results, would be stable, precise and clear for comprehension by production collectives. Do the suggestions on the revision and the increase of the number of indicators always take this into account? Is it really possible to recognize it to be expedient, for example, that several tens of indicators, in accordance with which bonuses are credited, are in effect at many enterprises?

Last year, as is known, the indicator of the production of consumer goods per ruble of the wage fund was introduced. The method envisages the payment of bonuses to workers for its fulfillment regardless of the other results of the work of the enterprise and in excess of the maximum amounts of the bonuses, which have been established for the corresponding categories of workers. This hardly conforms to the requirements of the completeness and special-purpose orientation of the plan. To be sure, the production of consumer goods should be stimulated, but additionally, in connection with the evaluation of the fulfillment of the assignments on the characteristic product, as well as on the indicators of production efficiency.

In a speech at the June (1983) CPSU Central Committee Plenum Comrade Yu. V. Andropov, while noting the importance of the campaign for the tightening up of discipline and order and the increase of organization and responsibility, which was launched in our country on the initiative of the party, said that "to ensure the well-organized, continuous operation of the entire economic mechanism is both a requirement of today and a program task for the future."

The utmost tightening up of state, planning and labor discipline is making it possible to increase significantly the level of management and thereby to ensure the further rapid development of the Soviet economy, the increase of the well-being of the people and the all-round improvement of the society of mature socialism.

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RESOURCE UTILIZATION AND SUPPLY

PUNCTUAL DELIVERIES CALLED CRUCIAL TO EFFICIENT ECONOMY

Moscow MATERIAL'NO-TEKHNICHESKOYE SNABZHENIYE in Russian No 7, Jul 83 pp 3-12

[Article by N. V. Martynov, deputy chairman of the USSR Council of Ministers and chairman of USSR Gossnab: "A Most Important Condition for Intensive Economic Development"]

[Text] In the system of measures defined by the November (1982) Plenum of the CPSU Central Committee to increase the efficiency of the national economy an important role is given to strengthening discipline in all its units and in every production section. Comrade Yu. V. Andropov, general secretary of the CPSU Central Committee, noted in a speech to Moscow machinebuilders: "This is first of all a demand of reality. Because without due discipline--work discipline, plan discipline and state discipline--we cannot move forward quickly. Establishing order does not actually require any sort of capital investments, but it yields a very great benefit."

Particular importance is being attributed in this connection to strengthening discipline in delivery of products. In a decree of the CPSU Central Committee and USSR Council of Ministers establishing order and discipline in performance of contractual obligations concerning product deliveries is regarded as one of the most important tasks of economic, party and Soviet authorities. It emphasizes that strengthening discipline in product deliveries is one of the decisive conditions for successful pursuit of the course adopted by the party toward intensive economic development and higher efficiency in the economy.

The party's Central Committee and the government have noted serious shortcomings in enforcement of contract discipline. A sizable portion of associations and enterprises are not discharging their obligations concerning deliveries. Today a large quantity of products are not reaching consumers in accordance with contracts concluded and orders. At the same time cases are not infrequent when materials and articles not ordered are produced, often there is no market for them, and physical resources are diverted to purposes which have not been planned. Breaches of the established priority in deliveries and the narrow departmental and localistic approach displayed by certain managers are having an adverse effect on fulfillment of plans. Such shortcomings are a consequence not only of underestimation of the importance of contract discipline on the part of ministries and enterprise managers, but also

of an outright failure by authorities in the nationwide system of material and technical supply to do all they should in this matter.

The CPSU Central Committee and USSR Council of Ministers have called upon USSR Gosplan to increase the effectiveness of the effort aimed at strengthening discipline in product deliveries in the economy and at strict observance of discipline by ministries, enterprises and supply-and-sales organizations, to raise the level of organization of material and technical supply in the country, to make a more thorough study of the need for resources, to maneuver resources more responsively, and to react more quickly and severely to cases of departmentalism and localism and diversion of resources to purposes which have not been planned.

This instruction of the party's Central Committee and of the government must become a program of action for all work collectives in the nationwide system of material and technical supply and for each of its workers at the center and at the local level.

An expanded session of the collegium of the committee held this April made a comprehensive examination of the problems of USSR Gosplan authorities in strengthening delivery discipline and worked out specific measures to solve them. If those measures are to be turned into practical deeds, a large organizational effort has to be conducted in every unit of our system, and they have to be translated into specific terms related to every organization and every work collective.

There are no sections of secondary importance in the work which is assigned to the nationwide system of material and technical supply. At every one of its levels--be it the central headquarters of the committee, soyuzglavsnab-sbyty and soyuzglavkomplekty [national supply-and-sales components and national aggregate-supply components], regional authorities or their enterprises--the problems of prompt and accurate fulfillment of the orders of consumers and of adherences to the proportions in material and technical supply of the sectors of the economy set forth in the state plan must be speedily solved every day. The general state of discipline of deliveries in the country and strict observance of obligations to related enterprises assumed by enterprises and organizations depends to no small degree on how this effort is organized and how responsively, responsibly all units of the system of USSR Gosplan operate in the interest of the state.

We could name quite a few organizations where the effort to work out delivery discipline has been organized quite well. They include the ESSR, BSSR and LiSSR Gosplans and a number of main regional administrations of RSFSR. As a rule the industrial enterprises located there have the highest level of fulfillment of contracts and job orders for product deliveries.

But even in the work of these organizations there is quite a bit of unused potential whose utilization will require a great deal of persistent effort. One aspect of this is improving the organization of the monitoring of deliveries. It is in need of substantial improvement. The task is to make it systematic, meaningful and effective. The lack of such monitoring not uncommonly results in serious breaches.

For instance, to a considerable extent shortcomings in the organization of monitoring by regional authorities and Soyuzglavmetall [Main Administration for Supply and Sale of Metal Products of USSR Gosplan] can explain nonfulfillment of the plan for deliveries of ferrous metals in the first quarter of this year. Whereas the plan for production of finished rolled products was overfulfilled, sizable underdeliveries of these products occurred under certain orders to enterprises of machinebuilding enterprises and certain other sectors of the economy. Moreover, a large quantity of rolled metal products were overconsumed by enterprises of USSR Minchermet [Ministry of Ferrous Metallurgy] for its own needs over and above the stocks allocated.

Of course, this did not happen all at once or of a sudden. The discrepancies accumulated daily over an entire quarter. But neither the personnel of the regional authorities which have jurisdiction over metallurgical plants nor the personnel of Soyuzglavmetall were prompt in taking the necessary steps, nor did they put a stop to the breaches of allocation and contract discipline. Which means that monitoring is a formality, without analysis, without effective influence on the actual performance of deliveries.

We should note that the personnel of certain regional authorities are not only permissive toward nonfulfillment of deliveries, but at times they even display localism. For example, in the first quarter of this year the shipment of metal by the Karaganda Metallurgical Combine to the enterprises which make deliveries for the Karaganda Main Regional Administration was fulfilled at a level of almost 119 percent. At the same time the enterprises of other regional authorities failed to receive thousands of tons of rolled products from that combine.

Cases like that are not confined to deliveries of metal. In the same quarter cement deliveries by enterprises of the Ukraine to consumers in the republic were fulfilled at a level of almost 102 percent, while deliveries to other economic regions were fulfilled at a level less than 92 percent. Departmentalism and localism are not uncommonly manifested in deliveries of timber in the Northwest, Komi, Tyumen and East Siberian regions.

In the first quarter of this year enterprises of USSR Minlesbumprom [Ministry of Timber, Pulp and Paper, and Wood Processing Industry] located in those regions used for their own firewood, over and above allocations, a sizable amount of commercial timber, while there was an underdelivery of it to agriculture, for sale to the public and for other extremely important purposes.

A determined campaign should be conducted against such underdeliveries, and it should be strictly guided by the instruction of the party's Central Committee and government to the effect that nonfulfillment of contract obligations and also cases of departmentalism and localism must be regarded as a flagrant violation of state discipline and plan discipline.

In accordance with a decree of the CPSU Central Committee and USSR Council of Ministers, the role of regional authorities of USSR Gosplan is being enhanced concerning fulfillment by enterprises of plans for delivery of products, especially to consumers in other economic regions. This requires setting up

regular monitoring and analysis of the course of deliveries and prompt and severe reaction to all breaches of contract discipline and allocation discipline, and also furnishing effective aid to enterprises in shipping finished products, and making every worker more personally responsible for fulfillment of deliveries. It is also important to achieve efficient interaction of all units in the system of USSR Gosplan in both the horizontal and vertical directions.

We should note that today the capabilities of the nationwide system of material and technical supply is still not being fully utilized by any means. Timely prevention of interruptions in delivery is not uncommonly hindered by the fact that measures are not taken responsively enough at the local level when warnings are issued by other regional authorities. Cases of formal write-offs are not uncommon, indeed sometimes people simply avoid solving the problems which have been posed.

This not only detracts from contract discipline, but it also results in a large number of "pushers" [expeditors] being dispatched. In just the first 2 months of this year, for example, more than 1,000 "pushers" visited the Donetsk Economic Region. The same thing is also happening in a number of other regions. In spite of the fact that such official trips are prohibited.

In many regional authorities not only are effective steps not being taken to put a stop to this vicious practice, but the causes that give rise to it are not being corrected in an essential way. In the light of the new demands for strengthening delivery discipline, there has to be an abrupt change in the attitude toward this effort, and the arrival of "pushers" in a region must be viewed as evidence of the unsatisfactory work of the respective regional authority, of its poor interaction with the authorities of other economic regions.

Enhancing the responsibility of *soyuzglavsnabsbyt* in matters of planning and regulating deliveries should also help to correct shortcomings of this kind to a considerable extent. The following example illustrates how important this is. In March of last year *Soyuzglavtrubsnabsbyt* [the *soyuzglavsnabsbyt* for pipe] granted consent to the Taganrog Metallurgical Plant for it to move fulfillment of certain orders from the second quarter to the third. No changes whatsoever were made in the job orders, and the plant was authorized to notify the proper regional authorities of the decision made. The plant did not do this. As a result many of them were placed in a difficult position.

Another similar case. Last year Gosplan filed suit against the Balkhash Mining and Metallurgical Combine *imeni 50-letiya Oktyabr'skoy revolyutsii* for violating priorities and schedules for shipment of products. But it turned out in *Gosarbitrazh* [State Arbitration Commission] that this combine was acting under an instruction of *Soyuzglavtsvetmet* [Main Administration for Supply and Sale of Nonferrous Metals of USSR Gosplan] in making an exceptional delivery of products to other consumers.

These are very disturbing cases. They indicate not only poor interaction of certain soyuzglavsnabsbyty with regional authorities on questions of regulating delivery, but also the lack of responsive local monitoring of product shipments. Otherwise the actions of Soyuzglavtsvetmet (which were wrong from the start) would have been known to the KaSSR Gossnab even while the plan was being fulfilled.

Along with being more exacting, the very organization of monitoring and its improvement at all levels of administration have great importance. There is a need to outline in detail what must be done from the standpoint of improving monitoring and improving the system of information. An effort is now being made in that direction, and the personnel of scientific research institutes of USSR Gossnab must take an active part in it. They have already prepared a number of recommendations. Some of them, for example, were drafted by scientists of the Scientific Research and Project Planning Institute of the System of Administration, and they are now being applied in practice. Some of the proposals of NIIMS [Scientific Research Institute of the Economics and Organization of Material and Technical Supply], in the opinion of customers, need to be worked out more thoroughly. These criticisms should be taken into account. A situation has to be brought about in which scientific recommendations fully meet the new requirements advanced in the decree of the CPSU Central Committee and USSR Council of Ministers on strengthening delivery discipline.

Use of computer equipment for monitoring deliveries is in need of substantial improvement. So far it has been used for these purposes in only 15 soyuzglavsnabsbyty and 20 regional authorities. Moreover, even in those organizations the capability of electronic computers is not being sufficiently utilized: coverage of the product nomenclature is incomplete, and the number of suppliers being monitored is limited.

There is a very great amount of work involved in monitoring deliveries. This monitoring cannot be done without calling upon computers. That is why it is important for soyuzglavsnabsbyty and regional authorities to make a careful study of the available know-how and to ensure widespread use of computer equipment.

There is every need to be more exacting toward managers in the economy for prompt and complete fulfillment of obligations under contracts and to take up every case of nonperformance. Our authorities daily use various forms of pressure on those who violate delivery discipline. For instance, the collegium of the Oka Valley [Priokskoye] Main Regional Administration last year heard reports from 25 managers of enterprises which had failed on deliveries. Reports were presented by 14 managers to the collegium of the South Urals Administration. On the initiative of the Khabarovsk Regional Administration 59 officials were made personally accountable for violation of allocation discipline and contract discipline. Similar work is being carried on vigorously by the TaSSR and KaSSR Gossnabs and by the Volga Valley [Privolzhskoye] and other main administrations of our system.

Exactingness has increased on the whole. Last year agencies of USSR Gosnab imposed half again as many economic penalties against violators of discipline as in 1981. Nevertheless, we cannot say that the situation is as it ought to be here. There are still cases of incomplete exaction of fines and of granting violators amnesty. For instance, the Leninakan "Strommashina" Plant has in recent years released equipment without job orders worth nearly 9 million rubles. But the ArSSR Gosnab has not imposed a single penalty on the plant.

Cases of full amnesty of one supplier by several of our agencies at once are still not uncommon. Last year, for example, 50 organizations in the system of USSR Gosnab failed to file claims against the Voskresensk "Krasnyy Stroitel'" Asbestos-Cement Products Combine for underdelivery of products. They include the Tatar, west Kazakhstan and a number of other main regional administrations. The TuSSR Gosnab and the Komi and Tyumen Main Administrations did not impose a single penalty for violation of priorities in the shipment of products. All of this, of course, undermines delivery discipline.

As is well known, in order to strengthen the influence on enterprises not fulfilling contract obligations the new Regulation on Deliveries has given our agencies the right--if consumers fail to file claims against suppliers for underdelivery--to submit the cases to Gosarbitrazh authorities to collect the forfeits as a revenue of the union budget. Last year about 700 such cases were instituted on the basis of material submitted by agencies of USSR Gosnab. But more than half of the regional authorities have not filed such claims. There has to be a decisive change in attitude toward this effort, and it should be seen not only as the right, but as the outright duty of all our agencies to bring violators of delivery discipline to economic accountability.

An important condition for prompt and precise fulfillment of the orders of consumers by industrial enterprises is their regular and interrupted material and technical supply. The scale of guaranteed aggregate supply of enterprises needs to be expanded, and direct long-term business relations need to be strengthened, and planned work needs to be done to build up at enterprises of the system of USSR Gosnab stocks of products in the necessary quantities and assortment. There is much to be done to improve the study of the needs for resources, to increase responsiveness in the maneuvering of resources so as to take into account fulfillment of the plans for production and delivery of products.

As noted in the decree of the CPSU Central Committee and USSR Council of Ministers on strengthening delivery discipline, often the requirement is determined without due responsibility, consumers not infrequently order products and then refuse them. Moreover, a sizable portion of orders are submitted by our agencies, and it is they who must bear responsibility for their reliability. At the present time they are committing rather frequent oversights, sizable ones in fact.

For instance, the Upper Volga, Tatar, Middle Volga and Volga-Vyatka Main Administrations this year rejected almost 10 million motor vehicle lamps even after receiving job orders for their manufacture. Declarations submitted for

carbamide resin in 1983 by the West Siberian, Middle Ural and Moscow Main Regional Administrations were too high. The TaSSR Gosplan submitted an order for spare parts for excavators which was nearly threefold what it should have been.

Cases like this indicate that the study of the requirement is not thorough and poor work is being done with enforceable (ispolnitel'nyye) balances. Where they lead can be illustrated by the situation with inventories at a number of delivery enterprises in the system of USSR Gosplan. For instance, as of 1 April of this year stocks of caustic soda at the enterprises of the TuSSR Gosplan and the Moscow City and West Siberian Main Regional Administrations exceeded twofold the assigned allowance. Inventories of slated enterprises of the MSSR Gosplan and Tatar Main Regional Administration exceeded the standard allowance by more than fivefold. At the same time at enterprises of certain other regional agencies the stocks of these materials were 10-20 percent of the assigned allowance.

Not only is this evidence of oversight by local agencies of USSR Gosplan in determining the requirement, but it is also a consequence of serious shortcomings in the maneuvering of resources by the relevant soyuzglavsnabsbyty. They must know the state of affairs at the local level and take immediate steps to redistribute resources so as not to allow interruptions in the supply of the economy and to use effectively what has been manufactured.

The system for requisitioning and specification of allocations is also in need of substantial improvement. The last time it was revived was about 10 years ago. Since that time certain changes have taken place in organization of the management of industry and construction, in the location and specialization of production, and in the pattern of transportation, interregional and intersector connections. Both our central authorities and local authorities have changed: the qualifications of their personnel have improved, and the level of mechanization of accounting and technical operations in receiving and placing the orders of consumers has risen.

At the present time proposals are being prepared for improvement of requisitioning and specification in the light of the requirements of the decree of the CPSU Central Committee and USSR Council of Ministers on strengthening delivery discipline in order to create favorable conditions (both for ministries and their enterprises as well as for all our own agencies) for the shaping of optimum delivery plans and for organization of effective monitoring of their fulfillment.

An important place in the system of measures defined by that decree is given to strengthening the economy regime and to improving the balance of production and the material and technical supply of production. Jointly with USSR Gosplan, USSR Gosplan has been ordered to take additional steps in this direction.

The effort to conserve resources in the country has recently become noticeably more vigorous. This made it possible last year to reduce the materials intensiveness of products produced. But we still cannot say that a radical

breakthrough has been made in the utilization of resources. A sizable number of enterprises are still not coping with assignments for conservation. This results in an overexpenditure of resources and disrupts the balance of plans. A particularly large number of such shortcomings are occurring at the enterprises and associations of Latvia and Tajikistan and the West Ural, North Caucasus, Krasnoyarsk and Kuzbass Economic Regions.

The reduction in expenditure of products whose distribution is planned by agencies of USSR Gosplan has also been occurring at too low a rate. The reasons for this lie above all in shortcomings of the efforts to improve the enforcement of standard allowances. Agencies of USSR Gosplan are expanding the scale of their activity in this field. During the period of preparing the plan for the present year more than 200,000 group allowances were examined--almost 10 percent more than in preparing the plan for the previous year. But the relative share of allowances which were reduced is still inadequate--only 27 percent. For a number of agencies--for example, in Soyuzglavtrubsnabsbyt, Soyuzglavkabel' [the soyuzglavsnabsbyt for wire and cable], the UzSSR Gosplan, and the Bashkir and Moscow City Main Regional Administrations--this indicator is still lower.

At the same time the experience of a number of agencies of USSR Gosplan indicates that high results can be achieved when the effort is properly organized. Work to conserve resources is being done creatively in Soyuzglavvognepornabsbyt [the soyuzglavsnabsbyt for refractories], which has enlisted a large group of scientists. The introduction of personal conservation accounts in Soyuzglavkhim [the soyuzglavsnabsbyt for chemical products] is yielding a large benefit. For example, 500,000 rubles were saved by using a substitute (exhaust gas acid) instead of synthetic hydrochloric acid, as proposed by a woman who works in that main administration, M. K. Salakhmetdinova. A. P. Mayorova's proposal on substitute of a domestically produced product for the imported santokyr yielded a substantial saving.

One might offer quite a few such examples. A thrifty attitude toward physical resources and constant creative search have to become the norm for every worker and for every work collective in the system of USSR Gosplan.

There is still quite a bit of unused potential here. One form is closing the channels for production of goods which have not been ordered and for which there is no demand. Every year the goods of this kind produced represent a sizable sum. Moreover, it is not uncommon for a sizable portion of these products to be manufactured under job orders of agencies of USSR Gosplan, which even pay for them.

Last year plans were overfulfilled for the production of certain products whose manufacture over and above the plan was prohibited because of their limited sale. Nothing but a lack of attention by the personnel of the Volga-Vyatka Main Regional Administration can explain, for example, why the Sarana Cable Plant overfulfilled 1.5-fold the plan for production of lamp cords which have limited application. A sizable quantity of copper, which is a commodity in short supply, was expended on this.

In violation of instructions in effect plans were overfulfilled for the manufacture of certain types of pipe and a number of articles with limited demand on the products list of Soyuzglavelektro [the soyuzglavsnabsbyt for electrical products], Soyuzglavavtosel'mash [the soyuzglavsnabsbyt for motor vehicles and agricultural machines] and Soyuzglavstankoinstrument [the soyuzglavsnabsbyt for machine tools and tools used with them].

Or, take another case. Last year enterprises of Minavtoprom [Ministry of Automotive Industry] produced beyond the plan a sizable number of bearings whose sales are restricted. Instructions to that effect were issued in this connection. But the situation did not change. This faulty practice is continuing even this year. In the first quarter a large overfulfillment of the plan was again allowed with respect to a number of types and sizes of these bearings. At the same time assignments were not fulfilled for manufacture of certain products which are in short supply.

The question is whether these cases are known to the personnel of the Central Chernozem, West Siberian, Vologda and Kharkov Main Regional Administrations? They undoubtedly were. But the measures they took against the plants which had committed the violations were manifestly inadequate. Moreover, certain personnel of the regional agencies sometimes even act as patrons of these plants, and request correction of the plants' plans to fit their actual performance. It is self-evident that such a situation undermines plan discipline and contract discipline. The colleagues in regional agencies should make a scrupulous evaluation of such cases and call personnel who show favor toward manifestations of the narrow departmental approach to strict accountability. The personal responsibility of personnel for strict fulfillment of assignments for the conservation of physical resources needs to be increased in every way, and every slackness and permissiveness in this matter should be regarded as a serious violation of state discipline.

We cannot but dwell in particular on such an important issue. The decree of the CPSU Central Committee and USSR Council of Ministers on improvement of the economic mechanism has ordered ministries to draft and approve with participation of USSR Gosnab lists of products for production and technical purposes for production associations and enterprises to be used by consumers and supply-and-sales organizations in concluding contracts for delivery of the products they need.

This is a very important decision. It affords the possibility of building up economic relations on a realistic basis and of cutting back on cases of unjustified refusals of enterprises to accept the orders of consumers.

But implementation of this decision has dragged out intolerably. So far such lists have not been drafted for the enterprises of ferrous metallurgy, the chemical industry, and a number of machinebuilding industries. Some lists were prepared as a formality. Certain products (spare parts, for example) are not indicated in physical terms, but in rubles.

In a number of ministries, as shown by a recent check, the lists have been drafted, but they have not been broken down to suppliers and consumers. This

is a serious oversight not only on the part of the soyuzglavsnabsbyty, but also of the central staff of the committee. Completion of this work needs to be speeded up. Successful development of direct and lasting business relations, the quality and stability of which still does not meet the requirements of the national economy, will depend on this to a considerable degree.

This is indicated by a case like this. Last year alone agencies of USSR Gosnab made about 300 changes in those relations, and that counts only those involving suppliers, not counting consumers. The largest number of adjustments were made by the Administration of Intersector Cooperative Deliveries, Soyuzglavavtosel'mash, Soyuzglavmetall and Soyuzglavelektro. In addition, a sizable number of revisions were made in the volume of products to be delivered on the basis of direct long-term relations.

Quite a few reasons were given for such changes: failure to meet schedules for the activation of new production capacities, corrections of production plans, and changes in the allocations of consumers. But, as experience of a number of agencies of USSR Gosnab has shown, agencies which, incidentally, work under exactly the same conditions as all others, it is possible to ensure high stability of direct long-term relations if the business is properly organized.

For example, since the beginning of this 5-year period there has not been a single violation of such relations established by Soyuzglavarmatura [the soyuzglavsnabsbyt for pipeline fittings and ventilating equipment]. They have had to be slightly corrected by Soyuzglavkabel' and Soyuzglavbum [the soyuzglavsnabsbyt for paper].

The organization of direct long-term business relations is in need of further improvement. Agencies of USSR Gosnab at the center and the local levels should improve interaction with ministries and departments and put those relations on a sound organizational foundation. Every case of changing them must be a subject for thorough analysis. It is also important to eliminate unnecessary rules and regulations in the mutual relations of enterprises working on the basis of such relations.

The soyuzglavsnabsbyty and regional agencies need to join ministries and enterprises in analyzing the state of development and effectiveness of direct long-term business relations and outline measures for their further expansion, for increasing the completeness of their coverage of all types of products which consumers regularly receive in transit quantities.

An important condition of product supply is that the product be promptly delivered from the manufacturer to the consumer. Most regional agencies are organizing their effort in this respect correctly. Together with enterprises and transport organizations they determine the order of priority for the shipment of products and check the feed of cars and their use.

But cases are not uncommon when instead of this vigorous organizational work certain managers send a flood of telegrams on the shortage of cars in every direction. Moreover, sometimes they try to conceal shortcomings in the use of rolling stock at industrial enterprises which they take under their wing.

Key personnel of the Northwest Main Regional Administration, for example, sent a large number of telegrams to USSR Gossnab on the failure to deliver cars to the Arkhangelsk Pulp and Paper Combine. And this at a time when the combine in March alone failed to use more than 300 railroad cars and almost the same number in the first 10 days of April. The managers of certain other agencies also resort to such actions. This indicates their passive attitude. Agencies of USSR Gossnab are called upon to make a systematic study of the state of affairs at the local level, to discover the real causes of shortcomings, and to extend effective aid to enterprises and transport organizations in the effective use of rolling stock.

The CPSU Central Committee and USSR Council of Ministers have given USSR Gossnab and its agencies a responsible task of ensuring a reduction of shipments which are not sensible and of prevailing on suppliers to sell products to small consumers. We are carrying on this work. Last year rail shipments were reduced by more than 10 billion ton-kilometers thanks to improvement of the schemes for assignment [of suppliers to consumers]. Nevertheless there are still quite a few problems here and their solution depends to a considerable degree both on soyuzglavsnabsbyty and also the regional agencies.

For example, the West Ural, West Siberian and East Siberian Main Regional Administrations need to draft and apply recommendations on the transfer in those economic regions of shipments (in the largest possible volume) from rail transport to direct water or direct combined transportation. The North Caucasus Main Regional Administration and the UzSSR Gossnab should work out recommendations that will contribute to improved use of the capacities of the Chechen-Ingush and Navoi cement plants. At present their capacity is being used at a level of only 40-70 percent. For this reason cement has to be shipped to Uzbekistan over distances, say, of 2,000 and 3,000 km.

A plan for soyuzglavsnabsbyty and regional agencies of USSR Gossnab to carry on efforts to revise the directions of freight flows and to expand computer computations of optimum schemes for assignment of consumers to suppliers for the period 1984-1985 has been drafted in order to provide a comprehensive solution to all these problems. It is important to achieve strict observance of the assignments set in that plan and to be quick to apply in practice the proposals drafted.

Serious attention should be paid to improving the shipment of products ordered by consumers in small quantities. Concern about this should be paid even at the time when the product is requisitioned. The orders should be consolidated to a maximum and the number of consignees reduced for the supplier.

The Donetsk Main Regional Administration, for example, requested delivery of brushes (electrical) from the Yelets "Prozhektornyye ugli" Plant for 170 consignees, each of them to receive between 300 and 600 brushes. The inevitable question is this: In view of the comparatively small size of this economic region, would it have been impossible to organize deliveries of the brushes to its own delivery enterprises? Of course it would have. Nevertheless, this was not done. Yet such oversights in requisitioning artificially create

difficulties in shipping finished products and prevent the productive use of transport. Large shortcomings in supply not uncommonly begin with these "tiny shipments." The task is for the agencies of USSR Gosplan to pay regular attention to consolidating the shipping lots and to extend effective and punctual aid to suppliers.

Development of interregional sorting enterprises for product deliveries needs to be speeded up. They have justified themselves, and the time has come to take a new step to expand their network and to organize commodity specialization.

Party, trade union and Komsomol organizations are given an important role in performing the tasks of strengthening delivery discipline defined by the CPSU Central Committee and USSR Council of Ministers. They are to do extensive explanatory and organizational work in every work collective, closely linking the further development of socialist competition to the issues related to strengthening delivery discipline. When the results of competition are totaled up and the winners are awarded challenge Red Banners and money prizes, fulfillment of contract obligations for delivery of products should be taken into account as a most important indicator of the business activity of the enterprise and the work collective.

It is also important to see that progressive know-how of enterprises and organizations in the system of USSR Gosplan which has achieved high indicators in performance of delivery plans and in strengthening contract discipline is studied and disseminated.

The decisions of the November (1982) Plenum of the CPSU Central Committee aimed at enhancing state discipline and work discipline have met with approval everywhere in our country and have had a beneficial effect on production affairs. By comparison with the first quarter of last year the volume of industrial output has increased 4.7 percent. Last year this indicator was 2.1 percent. Labor productivity has risen 3.9 percent as against 1.5 percent in the first quarter of last year. The level of fulfillment of delivery obligations has also increased.

"It is important that the tendency outlined toward improvement of the basic economic indicators be made stable," Comrade Yu. V. Andropov, general secretary of the CPSU Central Committee, has emphasized. "... This requires that a vigorous and persistent effort continue in all sections of the national economy to achieve the goals which have been set."

This instruction also fully applies to the effort being made today by the agencies of USSR Gosplan to strengthen delivery discipline, to raise the level of organization of material and technical supply of the economy. The vigorous and persistent implementation of the decisions adopted by the CPSU Central Committee and USSR Council of Ministers constitutes a worthy contribution of the personnel of the nationwide system of material and technical supply to carrying out the party's course toward intensive economic development and higher economic efficiency.

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REGIONAL DEVELOPMENT

PROGRESS, PLANS FOR GEORGIAN SSR VIEWED

New Analytical Method

Tbilisi ZARYA VOSTOKA in Russian 17 Mar 83 p 2

[Interview with Doctor of Economic Sciences Georgiy Papava by ZARYA VOSTOKA correspondent Dali Sadatiyerashvili: "A New Method Comes to the Aid"]

[Text] The Economic Analysis and Financial Control Department of the Scientific Production and Educational Association of the GSSR Ministry of Finance has developed a new method of economic analysis which makes it possible to measure precisely the real values of production reserves. To discuss this method a ZARYA VOSTOKA correspondent had a meeting with its innovator, Doctor of Economic Sciences Georgiy Papava, and asked him to answer several questions.

[Question] At the present time, in financial and statistical agencies, at enterprises and in scientific-research institutes specializing in the field of economics, in the course of economic analysis the purpose of which is the locating of production reserves one observes the universal application of the method of so-called chain substitutions. However, as has been shown by practical life, this method is not devoid of shortcomings. Georgiy Vladimirovich, could you please tell us wherein these shortcomings lie?

[Answer] Let us take, for example, the volume of total production of output. It can be divided into such factors as the individual production of output, on average, per worker, and the number of workers. The former is called a qualitative factor, and the latter is called a volumetric (quantitative) one. By subdividing the final results of production into factors, the method of chain substitutions has been called upon to measure the capabilities for the further improvement of the final results precisely on the basis of those factors. However, it has its minuses, namely: it does not guarantee unambiguity of the obtained results, and, in particular, it unjustifiably assigns an active role to the qualitative factor irrespective of the specific economic situations that have developed. This method is also inconvenient for comparing given enterprises, regions, etc., since it provides asymmetrical indicators, that is, quantitatively different numerical values for the results of computation, with the reciprocal replacement of the base data (enterprise's indicators for the previous year) and the report data (indicators for the

current year). As a result of these shortcomings, the chain substitution method does not resolve the task of the precise measurement of the real reserve values.

Nor is this task resolved by such methods of economic analysis as the logarithmic, integral, index, and variational analysis of the distribution of the increase of production by factors. And yet, under conditions of the broadly extended network of enterprises and the high factory and plant concentration of production, as well as the increased dynamic nature of our country's economy, the slightest error in computations is fraught with large undesirable consequences. Inaccuracies in determining the amounts of improvement of the final results of production by factors disorients the directedness and the selection of technical-organizational measures for mobilizing the production reserves.

[Question] Apparently, the lack of perfection in the old approach is what suggested to specialists that they search for a new method of economic analysis, which would claim to have a high degree of precision of measuring the reserves on the basis of factors. . .

[Answer] As a result of the search, we developed the method of SEP, system of economic periodants--instances of a particular phenomenon which are formed by the system of factors in a particular sector of space at a definite period of time. Forming the basis of the SEP is the genetic periodant approach, the essence of which is the consideration of the development of the final results of production as periodants.

On the strength of this, this method is a mobile one. It reacts appropriately to the specific economic situations, thus assuring the precision of measuring the real values of the growth reserves (improvement) of the final results of production by factors. This is confirmed by computations carried out with the aid of the new method with data for the Tbilisi Stocking and Sock Production Association for 1981. In this instance it was possible with truly meticulous precision to measure the real values of the reserves for this production.

Taking into consideration the indisputable advantages of using the new method, the board of GSSR Ministry of Finance made the decision to recommend it in the analysis of the labor productivity and overall production of output. In addition, the SEP method will undergo experimental checking at industrial enterprises in Zavodskoy Rayon, Tbilisi, and Avtozavodskiy Rayon, Kutaisi. The results will be submitted to USSR Ministry of Finance with the purpose of making the necessary changes in the methodological instructions for analyzing the financial-economic activities of industrial enterprises.

Republic Gosplan Official

Tbilisi ZARYA VOSTOKA in Russian 30 Jun 83 p 2

[Article by Otar Kakauridze, Deputy Chairman of GSSR Gosplan: "A Lot of Work Ahead"]

[Text] The decisions of the June Plenum of the CPSU Central Committee and the very important principles and instructions contained in the

speech given at that Plenum by General Secretary of the CPSU Central Committee, Comrade Yu. V. Andropov, constitute a fighting program of actions, a powerful impetus for extending the work in all sectors of the national economy. And there is no doubt that, within the not too distant future, we shall see new remarkable successes in economic, ideological, and sociopolitical life.

However, today I would like first of all to speak a bit about the path that we have traveled, about what we have overcome in the first two and a half years of the five-year plan, and about the backlog that has been created for assuring our further movement ahead.

Analysis indicates that, in the development of all branches of our republic's economy, during the past two and a half years considerable successes have been achieved: the increase in the volumes of production of the most important types of output has been assured; there has been a rise in the population's standard of living; and there has been a consistent improvement in overcoming the relative lagging behind of GSSR in comparison with the nationwide level for the basic indicators of economic and social development.

The assignment for production of output in January-May 1983 by Georgian industry was fulfilled by 103 percent; the rate of growth of volume of production as compared with the corresponding period last year came to 105.4 percent. The republic's enterprises produced, in excess of plan, output valued at more than 114 million rubles, and sold, in addition to the assignment, articles valued at 95.7 million rubles.

According to tentative computations, by the end of the current year the volume of production of commercial industrial output as compared with 1982 will increase by 5.7 percent; the absolute increase of production of output will reach 592 million rubles, of which 349 million rubles will pertain to the union-republic ministries and departments. It is expected that there will be fulfillment and overfulfillment of the yearly planned assignments for the production of many types of output, including the production of manganese, petroleum, and gas, the production of steel, rolled ferrous metals, steel pipes, electric locomotives, metal-cutting machine tools, and trucks. There is justification for assuming that there will be successful fulfillment of this year's planned program for the production of furniture, silk, cotton, and woolen fabrics, outer knitwear, natural tea, etc.

An extremely complicated situation has been created in agriculture. Heavy rainstorms and hail caused tremendous losses in the branch. Nevertheless, thanks to the selfless labor of the agricultural workers, one can assume the fulfillment and overfulfillment of the year's assignments for the purchase of such very important types of agricultural output as grain, potatoes, vegetables, high-grade tea leaves, grapes, citrus fruits, meat, milk, eggs, etc. The plan for delivery of agricultural products to the nationwide fund will be fulfilled; the volume of gross output of agriculture during the current year will exceed last year's level by 218.5 million rubles.

The capital construction program is being successfully fulfilled. The volume of capital investments, on the basis of all sources of financing, in 1983 will be 1,790 million rubles; fixed assets valued at 1,825 million rubles will be activated, or 16 percent more than last year's figure.

Definite success was achieved in the development of transportation. The freight turnover of motor transport will increase during the present year, as compared with last year, by 4.6 percent, and there will be a 2.7 percent increase in passenger turnover.

There was a substantial development of the branches in the nonproduction sphere -- public health, education, culture, everyday services for the public, etc.

The dynamics of the basic generalizing indicators of the republic's economic and social development during the period since the beginning of the five-year plan are characterized by the following figures: the volume of the gross national product in the present year will exceed by 15.1 percent the 1980 level, and during the first three years the physical volume of the national income will increase by 20.4 percent. There has been successful fulfillment of the assignments for the production of commercial industrial output and for the increase of labor productivity, with adherence to the line that is aimed at the outstripping growth of the production of consumer goods, as compared with the production of producer goods. Thus, with an increase in the production of output in Group A [producer goods] by 10.2 percent, the production of output in Group B [consumer goods] will increase by 24.1 percent during the three years.

Analysis of the implementation of the republic's food program indicates that, despite the extremely unfavorable weather conditions, the agricultural workers will succeed in fulfilling the planned assignments for the first three years of the five-year plan for the production of high-quality tea leaves, citrus fruits, meat, and wool; during the years 1981-1983 the number of head of cows will increase by 2.2 percent.

One of the important features of the development of the national economy of GSSR since the beginning of the five-year plan has been the further reinforcement of its material base. A large amount of the capital investments intended for production purposes was channeled into industrial construction.

Positive shifts are also being observed in the intrabranched structure of industry. As a result of the outstripping development of the branches of machine-building, there has been an increase in its percentage in the republic's industrial production. Electronic industry, instrument-building, and other branches of machine-building have begun to develop at faster rates.

In the first half of the five-year plan, a large amount of attention was devoted to improving the use of the existing production and scientific-technical potential, to the introduction of new, advanced technology and resource-saving technological processes, and to the improvement of the organization of production and administration. The productivity of social labor in 1983 is rising, as compared with 1980, by 20.2 percent, with an assignment of 15.1 percent. This will result in the obtaining of a large part of the increase in the national income and the industrial output.

The system of administration of return on investment in the republic's national economy is functioning successfully. Thanks to an increase in the work load placed upon the equipment, the return on investment in industry has risen by 8.7 percent.

The improvement of the organization of the procurement and processing of secondary material resources and production by-products, and the introduction of technological schemes with little or no waste products have made it possible to reduce considerably the material-requirements for production. The tentative sum of the economy resulting from this during the first three years of the five-year plan will come to 416 million rubles.

In increasing the indicators of the effectiveness of social production, an important role was played by the purposeful work being conducted in the republic to improve the administration of the economy, the purpose of which is the efficient combination of the branch and territorial principles. In many regions of the republic, on the initiative of the local party and Soviet agencies, the material and labor resources are being successfully integrated, and new agencies of the administration of the economy are appearing, which agencies guarantee the involvement of the local resources in economic turnover. Factors which, for example, deserve attention are the already well-known Poti experiment, as well as the experiment that is being carried out in Zavodskoy Rayon, in the city of Tbilisi.

A typical feature of the development of our republic's economy since the beginning of the five-year plan has been the outstripping rate of growth of its basic branches and the generalizing indicators of the economic and social development as compared with the corresponding branches and indicators for the country as a whole. As a result there has been a gradual easing and reduction of the gap between the republic level and the average nationwide level of economic and social development.

Thus, it can be said that the economy of GSSR during the current five-year plan is developing dynamically, very important problems in the national economy are being resolved successfully, and our workers, under the guidance of the republic's party organization, have been consistently implementing the decisions of the 14th CPSU Congress and the 26th Congress of the GCP Congress, and the Plenums of the CPSU Central Committee and the GCP Central Committee that are aimed at improving the entire economic mechanism and at reinforcing state, planning, and labor discipline.

At the same time, in the development of individual branches one has noted a lagging behind. True, fairly frequently, this lag is explained by objective factors, such as the unfavorable weather conditions, the limited nature of the material investments, the insufficient provision with material and raw-material resources, etc. But in most instances the breakdowns have been caused by miscalculations and blunders in organizing the job right there at the enterprises, ministries, and departments.

For example, a substantial lag behind the normative deadlines for assimilation of the rated capacities has been observed at the Azot Production Association in Rustavi; the Ingurskaya and Vartsikhskaya GES; the Tsentrolit Plant in Rustavi; and the Batumi Electrical-Engineering Plant. There is a low coefficient of use of capacities because of production-organization malfunctions has been low at such enterprises as the Tbilisi Electric-Locomotive-Building Plant imeni V. I. Lenin, and the Stankostroitel' Production Association.

All this, in the final analysis, leads to the arising of interbranch and intra-branch disproportions and discrepancies in the development of individual branches of the national economy.

In many rayons in the republic, agricultural production has been developing at insufficient rates. On individual farms, poor use is being made of the land, labor, and material-technical resources, and there have been gross failures to meet the deadlines for the conducting of the agrotechnical operations. Especially unsatisfactory use is being made of irrigated land. Suffice it to state that not a single farm has achieved, on irrigated land, the planned harvest yield, and in a number of instances the amount of output produced is less than on unirrigated land.

There continues to be a large number of unresolved problems in capital construction. Judged on the basis of the result of the first two years of the five-year plan for the total amount of the annual plans there has been an underuse of 114 million rubles. The indicator of fulfillment of the plan for activation of fixed assets is lagging behind, by eight points, the fulfillment of the assignment for the use of capital investments. This is causing an increase in the volume of uncompleted construction and, consequently, the worsening of the indicators of the effectiveness of the capital investments. During that period of time, projects that were not activated included such important ones as the Metal Structural Plant in Zugdidi, the petroleum base in Poti and Ochamchira, the bread products combine in Makharadze, the glass plant in Surami, the Avchal'skiy Silicate Wall-Material Plant, the branch of the Sukhumi Garment Factor in Ochamchira, etc.

Serious shortcomings exist in the work of rail transportation, where the railroad car idle-time periods still are great and the rolling stock is being used poorly.

In certain branches the labor productivity is growing at inadequate rates, the achievements of science and technology are being introduced slowly, and the losses of work time are still considerable.

In a word, we still have a rather large number of tasks that require the fastest resolution. There is a large amount of work ahead of us. During the forthcoming years it will be necessary first of all to concentrate attention on such important areas as the increase in labor productivity, the improvement of the quality of the output being produced, the precise organization of shipments, the increase in the return on investment, the improvement of the work of transportation, the broad introduction of collective forms of organizing and paying labor, the reduction of the share of manual labor, and its closer and closer approximation on that basis with the average nationwide indicators for economic development. The chief requirement today is to guarantee the unconditional fulfillment of the plans for the plans for the 11th Five-Year Plan.

Budget's Role

Moscow FINANSY SSSR in Russian No 7, Jul 83 pp 27-30

[Article by M. V. Murdzhikneli, GSSR Deputy Minister of Finance: "The Role of the Republic's Budget in the Resolution of Socioeconomic Tasks"]

[Text] The Communist Party has been firmly and consistently conducting a course aimed at the economic and social development of the USSR, unswervingly.

following the principles of socialist internationalism. Special importance has always been attached and continues to be attached to the efficient placement of the productive forces, to specialization and cooperation in production, which contributes to the development of the republic's economy, the complete rapprochement and cooperation among the country's nations and nationalities.

The Soviet authority created the conditions for the political, economic, social, and cultural flourishing of the union republics. That manifested itself with particular clarity in the republics that had previously been backward borderlands of tsarist Russia.

A large amount of success was also achieved by our republic. The volume of industrial output in 1980, as compared with 1913, increased by a factor of 166, and the national income exceeded 7.1 billion rubles. In the 9th and 10th Five-Year Plans Georgia overcame the substantial lag behind the average nationwide level for a number of very important indicators, with the volume of industrial output doubling in 1981 as compared with 1970, and the output of agriculture increasing by 43 percent. The increase in the gross national product during that decade surpassed 96 percent. Major changes also occurred in the basic indicators of the effectiveness of management -- labor productivity and the quality of output. Judged on the basis of their growth, GSSR is in one of the leading positions in the country. The volume of capital investments during the period being considered increased by 72 percent; national income, by 99 percent, and its share used for consumption and accumulation by 79 percent. The 26th GCP Congress noted that "the tendency of this correlation of the national income that is produced and that is consumed on the territory of the republic, which tendency relies upon the growing share of the republic in the nationwide economic potential and upon the further carrying out of the laws of expanded expanded, should be deemed to be desirable. That tendency, for the first time in the history of Georgia, was formed in the 1970's and reflects the major shifts in the national economy"*.

There has been a noticeable rise in the welfare of the Georgian people. In 1971-1981 the republic built 286,000 apartments, where 1,563,000 residents had housewarming parties; during the past 11 years, 975 schools, accommodating 391,000 students, went into operation, as well as preschool institutions for 64,000 children and medical institutions with 16,000 beds. The average monthly earnings of the workers and employees increased by 41 percent; the payment of the labor performed by kolkhoz members, by 112 percent; and the payments and benefits received by the public from public consumption funds, by 93 percent. The retail commodity turnover in state and cooperative trade increased by 89 percent, and the volume of everyday services provided to the public, by 173 percent.

In addition to the successes, we also have shortcomings, which were frankly mentioned at the 26th Congress and the subsequent Plenums of the GCP Central Committee.

* "Materialy XXVI s"yezda KP Gruzii" [Materials of the 26th GCP Congress], Tbilisi, Sabchota Sakartvelo, 1981, p 7.

In the achievements of the republic's economy and culture, an important role is played by the budget. The country's finances are centralized in the USSR State Budget, which unites the union budget and the budgets of the union republics. This structure of the budgetary system corresponds to the national policy of the Communist Party, guaranteeing the implementation of the plans for the economic and social development not only of the country as a whole, but also that of the union republics, and their reciprocal aid. The republic-level and local budgets represent the financial base of the republic and the local Soviets of People's Deputies.

In the modern developed capitalist state, the budget is of an obviously antipopular, militaristic nature. The endless increase in military expenditures leads to an increase in the tax load of the public, to the reduction of the appropriations for social programs and the real income of the public, to inflation, and, in the final analysis, to a budgetary deficit.

The budget of the socialist state is not typified by a deficit or inflation. Its expenses are covered by the income. Its chief task has been and continues to be the reinforcement of the country's economic might, the accumulation of social wealth, and the further rise in the national standard of living. The USSR State Budget is a component part of the financial system of socialist society. Its importance at the present-day stage of developed socialism is very great.

The redistribution of state financial resources in the territorial cross-section runs through the union budget. Its funds are used to finance major industrial enterprises, electric power stations, railroad and construction enterprises to serve nationwide needs, etc.

The regular concern by the party and government for the expansion of the rights of the union republics is the carrying out of the Leninist national policy. Their intensive economic and simultaneously the expansion of the rights predetermined the substantial changes in the volume and structure of the budget. During the past two five-year plans alone, the expenditures of the state budgets of the union republics increased by 84.9 percent and exceeded 136.8 billion rubles.

In conformity with the decisions of the 26th CPSU Congress, during the 11th Five-Year Plan and subsequent ones even greater attention will be devoted to the reinforcement of the material-financial base of the union and autonomous republics. Speakers at the congress noted the need "to assure the improvement of the placement of the productive forces for purposes of increasing the effectiveness of social production on the basis of the further specialization and the proportional development of the union republics and economic regions in the country's single national-economic complex," and also "on the basis of the rise of the economy and the effectiveness of social production, the guaranteeing of the further rise in the national standard of living in all the union republics".*

* "Materialy XXVI s"yezda KPSS" [Materials of the 26th CPSU Congress], Moscow, Politizdat, 1981, pp 184-185.

In the resolution of these tasks in the 11th Five-Year Plan a very important role is played by the budget, which, being the basic financial plan for the creation and use of the single social monetary fund of the Soviet state, participates actively in the distribution and redistribution of the social product and national wealth of the country.

The GSSR State Budget was prepared from 25 February through 31 December 1921 in the form of reports concerning the execution of individual departmental lists. In the 1st Five-Year Plan the state appropriations for the development of the basic branches of the national economy and social measures were equal to 202 million rubles. A large number of new industrial enterprises were activated. Agriculture and other branches developed successfully. During the 2nd Five-Year Plan, 2.4 billion rubles were allocated for the financing of the republic's national economy and culture. In 1940 Georgia's industry produced 20 times as much output as in 1921. The republic had 4783 general educational schools with 766,600 students; 977 preschool institutions where 48,000 children were taken care of; and 21 higher educational institutions with 28,500 students. After the war and until 1950, 10.5 billion rubles were appropriated from the budget for the development of the economy and culture. In the 5th and 6th Five-Year Plans 37.5 billion rubles of funds from the budget were expended for the financing of the national economy and social and cultural measures. At the end of 1965 the republic's enterprise's produced 56 times more output than in 1913. The labor productivity in industry during 1940-1965 increased by 239 percent; and the national income in 1965 was equal to 2,875 million rubles. Agricultural output valued at 1136.8 million rubles was produced; the number of tractors reached 12,884; combines, 1694; and trucks, 11,843; the number of physicians, 15,758; medium-level medical personnel, 37,002; hospitals, 650; hospital beds, 38,200 beds; enterprises providing everyday services to the public, 7324; and the volume of everyday services was 29.6 million rubles.

The workers of Georgian SSR during the 9th and 10th Five-Year Plans successfully fulfilled the state plans for economic and social development and the republic's budget. This was aided, to no small extent, by the socialist competition for the worthy meeting of the 25th and 26th CPSU Congresses. The volume of the republic's budget in the 10th Five-Year Plan increased by 85 percent as compared with the volume in the 8th; and by 32 percent as compared with the volume in the 9th.

The constantly growing monetary accumulations of the socialist economy are the decisive source of the income for the GSSR State Budget. Those accumulations constitute nine-tenths of the total amount of income.

The chief types of income in the republic's budget are the turnover tax and the payments from the profits of state enterprises and economic organizations. During 1965-1981 those items more than doubled. In 1981 their share in the volume of the budgetary income exceeded 65 percent. As a result of the improvement of production in the branches of the national economy, the increase in labor productivity, the better use of resources, the introduction of advanced methods of labor, and the reduction of production costs, the accumulations are increasing steadily.

The turnover tax occupies first place in the budgetary income. It is increasing steadily on the basis of the increase in the production and sale of manufactured and food commodities. The payments of this tax are used to redistribute part of the monetary accumulations among the branches and regions.

The second basic source is the profits derived by state enterprises and economic organizations, part of the net income of society. With the introduction of the 1965 economic reform, the share of payments from profits to the budget has been constantly increasing. In 1981 that share was equal to 753 million rubles.

The republic's financial agencies are carrying out a large amount of work to locate reserves within the economy for an increase in the profitability of enterprises, and accumulations and payments to the budget. It should, however, be noted that in a number of instances the quality of the audits of the reports and the analysis of the financial and economic activities of the associations, enterprises, and economic organizations still do not meet present-day requirements. There are many unused opportunities for the production of additional output, for increasing the effectiveness of production, for saving material, labor, and financial resources, and for increasing the state income in the branches of the national economy.

During the past three five-year plans the expenditures from the republic's budget have increased by 2.3 times and in 1981 exceeded 2.6 billion rubles, with more than 2.3 billion rubles being channeled into the development of the branches of the national economy and culture alone. The volume of expenditures for the needs of the economy during the past 15 years increased by 2.2 times and in 1981 it came to 1.1 billion rubles. This was caused by the rapid and proportional development of the branches of the national economy. Despite the considerable increase in the budgetary appropriations to the national economy, their share in the past five-year plan was reduced from 46 to 43 percent. This is explained primarily by the fact that in the expenditures of the associations, enterprises, and economic organizations there has been an increase in the share of their own income.

The budget has a large role in the consistent carrying out of the party's line that is aimed at the dynamic development and improvement of the branches of the agroindustrial complex. Large-scale appropriations are being allocated from the republic's budget for the replacement of the differences in the prices for purchases of agricultural products with the purpose of improving the position of the sovkhozes and kolkhozes that are operating at a loss or at a low rate of profitability, and of increasing the payment for the labor performed by the kolkhoz members and sovkhoz workers. Beginning in 1983, the procedure that is currently in effect for financing sovkhozes from the state budget has been extended to kolkhozes that are insufficiently provided with fixed assets and which do not have their own funds at their disposal, in order for them to carry out expanded reproduction.

The republic's budget has a tremendous role in financing social and cultural measures. The budgetary appropriations for social and cultural measures in 1965-1981 increased from 505 million to 1,255 million rubles. Today every fourth ruble of budgetary funds is channeled into public education; every

eighth, into public health; and every sixth, into social security. This is possible only in a country where the wealth is the property of the working nation and is expended for its welfare.

In order to improve the regulation of the local budgets and reinforce the financial base of the local Soviets of People's Deputies, it will be necessary to consider the questions of changing the existing procedure for the transfer of payments from the profits gained by the associations, enterprises, and economic organizations at the republic level of administration to the lower-level budgets and for the balancing of reciprocal settlements involving the transmitted and received funds between the higher-level and lower-level budgets. That will make it possible to reduce the mechanical growth of the volume of the budget and to determine precisely the percentage of the funds that have been allocated for the development of the branch.

It is necessary to pay more attention to the participation by the enterprises at the union and republic levels of administration in the construction of enterprises for education and public health, in projects involving expansion and remodeling, the capital and current repair of their buildings and structures, and the purchasing of educational and medical apparatus. For this purpose it is planned to create under the executive committees a centralized fund for social and cultural measures -- as much as 15 percent of the deductions from enterprises and organizations at the union and republic level of administration from the fund for social and cultural measures and housing construction.

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Economic Modeling

Moscow IZVESTIYA AKADEMII NAUK SSSR: SERIYA EKONOMICHESKAYA in Russian No 4, Jul-Aug 83 pp 69-75

[Article by K. N. Kostanishvili: "Analysis and Modeling of the Interbranch Ties in the Republic's National Economy"]

[Text] The article discusses the results of a study of the tendencies of the structural changes in the interbranch distribution of the most important types of material resources in the national economy of Georgian SSR. Certain methodological questions in the development of a republic-level model of interbranch interactions are considered. The author provides a mathematical-economic analysis of the natural laws governing the distribution and formation of multifactor regressive equations that describe the dynamics of the basic streams of energy resources and agricultural and chemical raw materials.

The decisions of the 26th CPSU Congress emphasize the need for the further improvement of the interbranch and intrabranh proportions, for the guaranteeing of the balanced growth of the economy. Another measure that is aimed at this is the implementation of the principles stated in the decree of the CPSU Central Committee

and the USSR Council of Ministers, dated 12 July 1979, entitled "The Improvement of Planning and the Intensification of the Effect of the Economic Mechanism Upon Increasing the Effectiveness of Production and the Quality of Work."

At the present time there are in existence extensive statistical elaborations of the interbranch ties both on a countrywide scale and in the regional cross-section, which elaborations have received reflection in the interbranch balance sheets. In particular, GSSR has accumulated sufficient experience in developing various mathematical-economic models of the interbranch balance sheet. At the same time, despite the existing achievements in the field of theoretical research and the practical application of these elaborations, they have not yet become an effective instrument of national-economic planning or forecasting.

The forecasting of the branch structure of the republic's economy is faced with a number of very important tasks that are influenced by the general tasks of national-economic forecasting. They include, first of all:

- the determination of the structural policy for the development of the republic's economy over the long-term period;

- the quantitative expression of the material-substantive proportions in the republic's national economy over the long-term period. In this instance, proceeding from the national-economic needs and the available resources, at the preliminary stage of forecasting it is necessary to establish the limits of the possible changes in the interbranch ties, the range within the confines of which various decisions will be made, relative to the structural changes in the national economy;

- the establishment of a balanced situation among the results of the partial forecasts for the development of the individual branches.

The resolution of the tasks of forecasting the structural shifts in the republic's economy requires the elaboration of a system of mathematical-economic models. In that system it would be desirable to include a multi-sector model that assures the attainment of a balanced situation among the branch volumes of output, the final indicators of which are the interbranch flows of output and the flows that form the final product. This model can be constructed on the basis of a preliminary analysis of the changes in the interbranch ties.

With the purpose of studying the tendencies of the change in the interbranch ties and the factors that determine them, an analysis was made of the dynamic series of indicators, which series reflect the consumption of the material resources in the national economy of the republic in the branch cross-section for a 20-year period -- from 1961 through 1980.

An analysis of the dynamic series that characterize the interrelationships among the branches of the republic's national economy made it possible to isolate a group of factors under the effect of which, basically speaking, the

interbranch proportions are formed. They include: the overall volume of the resources to be distributed; the interaction of the consumer branches in the process of the distribution of the material resources; the correlation between the primary and secondary interbranch flows; the change in needs, relative to the specific types of resources; the interchangeability of some types of resources by others during the formation of the current material expenditures in the individual branches, etc.

At the stage of development of the national-economic plan, when there is sufficient information and with the proviso that the iterative computations are executed, there is the opportunity to take into direct consideration the results of the effect that the enumerated factors have upon the interrelationships between the structure of the existing resources and the interbranch proportions. But in forecasting, as a result of the lack of any detailed information and the impossibility of executing such computations, one cannot use the methods that are employed in planning.

For the resolution of the tasks of structural forecasting it is proposed that one use a statistical approach to the analysis and modeling of the interbranch proportions, an approach that promotes simultaneously the resolution of the problem of the formation of a scientifically substantiated normative base for the interbranch balance sheet -- the system of coefficients of material expenditures.

One of the basic means of implementing the statistical approach is the construction of multifactor regression equations that reflect the influence of the basic factors upon the interbranch ties. The basis of their construction is provided by the dynamic series that reflect the interbranch flows of output, the flows that form the elements of the final social product, and also the dynamic series of indicators that reflect the factors to be studied. The equations are included in the overall system of the model of the interbranch interactions that was developed at TsEMI AN SSSR [Central Mathematical-Economics Institute, USSR Academy of Sciences], the individual aspects of the construction of which are reproduced with definite modifications as applicable to the republic level ("Model' mezhotraslevykh vzaimodeystviy" [Model of Interbranch Interactions], edited by Yu. V. Yaremenko, Moscow, TsEMI AN SSSR, 1976).

The use of the model of the interbranch interactions for forecasting the branch structure of the republic's economy requires its definite transformation in the direction of the more complete consideration in the forecast computations of the tasks that confront the structural development of the republic's economy. In this regard, the task that comes into the forefront is the task of selecting the basic branches of the national economy in the cross-section of the individual subbranches and products, proceeding from their role and importance in the formation of the structure of the republic's economy. This will make it possible:

-- first, to analyze the interbranch flows of output at the level of consolidated branches; these include the branches that are characterized by a sufficiently high level of specialization with regard to the production of homogeneous output;

-- secondly, to study in detail the ties at the level of the individual sub-branches and products, the distribution of the output of those branches which are characterized by a rather high level of intrabranh turnover (food and light industry);

-- thirdly, to carry out the multifactor analysis of the output flows that form the individual elements of the final social product.

Proceeding from what has been stated, the basic equations for the model of the interbranch interactions -- the equations of the highly aggregated interbranch flows and the flows that form the final product -- must be supplemented by equations that express the functional dependences of the distribution of the individual products produced in the particular branch. In order to describe the dynamics of the interbranch flows, it is proposed that one use the functional dependence:

$$X_{tsj} = f(X_{ts}, X_j, X_{tsl}, X_{k_{pj}}),$$

where X_{tsj} is the flow of product \underline{i} from branch \underline{s} into branch \underline{j} ;

X_{ts} is the value of the resource of product \underline{i} that pertains to aggregated branch \underline{s} ;

X_j is the value of the output to be consumed by aggregated branch \underline{j} ;

X_{tsl} is the value of the flow of product \underline{i} into the related consuming branch \underline{l} ;

$X_{k_{pj}}$ is the value of the flow of product \underline{k} , which replaces the flow of product \underline{i} from branch \underline{p} to branch \underline{j} .

Similar functional dependences can be constructed for the purpose of determining the flows that form the final product.

The research that was carried out to study the tendencies of the structural changes in the interbranch distribution of output includes as the initial base the drawing up of consolidated interbranch tables for 1961-1980. When constructing the dynamic series that reflect the flows of output that forms the production consumption and the elements of the final social product, it was necessary to use various kinds of information. It must be noted that the specific nature of the computation of the interbranch balance sheet and the lack of orderliness in the system of statistical reports in this area, especially in the regional cross-section, make it impossible to obtain directly a number of indicators. Therefore they were determined with the aid of additional computations.

When preparing the dynamic series of the intermediate and final output, use was made primarily of the interbranch report balance sheets for the production and distribution of output for 1966, 1972, 1977, 1979, and 1980 that were developed at GSSR TsSU [Central Statistical Administration]. The principles of

construction and the degree of aggregation of the branches in these balance sheets served as the basis for the formation of the nomenclature of the balance-sheet tables that were developed by us. In the computations, use was made of materials of a general balance-sheet nature, in particular, data pertaining to the element-by-element structure of the national income, the indicators of the partial material balance sheets, data pertaining to the statistics of commodity turnover, material-technical supply, and transportation, and other information of a generalized nature.

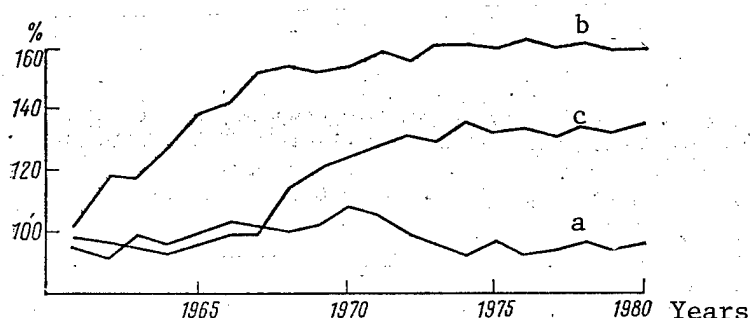


Fig. 1. Dynamics of the coefficient of direct expenditures of fuel (in percentages to 1960) for output of:

a - ferrous metallurgy; b - electrical engineering; c - transportation.

From the overall system of interbranch ties, let us isolate and analyze the dynamics of two basic groups of interbranch coefficients that reflect the consumption in the GSSR national economy of energy resources and agricultural and chemical raw materials.

In 1961-1980 it was planned to have a further increase in the efficiency of the republic's fuel and energy balance sheet. The increase in the percentage of electrical energy, petroleum, and gas in the overall energy expenditures caused corresponding changes in the consumption of these resources in the basic branches of the republic's national economy. At the same time, it is necessary to consider as an important factor that influenced those changes the shifts in the correlation of the dynamics of the basic energy-consuming branches throughout the entire period being analyzed.

A graph showing the dynamics of the most important coefficients of the material expenditures of energy resources in the national economy of Georgian SSR is given in Figs. 1, 2.

Important changes in the republic's economy were the consequence of the structural shifts in the republic's fuel and energy balance sheet.

1. The increase in the percentage of electric energy, petroleum, and gas in the fuel and energy balance sheet caused a reorganization of the energy base of

ferrous metallurgy, machine-building, and other branches of the investment complex. The most typical were the shifts that occurred in the 1960's. The acceleration of the rates of growth of production of electric energy and gas production contributed to the active crowding out of coal from the sphere of production consumption in ferrous metallurgy. At the same time the outstripping rates of development of electric energy caused an increase in the volume of shipments of coal into that branch. Coal became the basic source of technological fuel for the development of electric-energy production under conditions of the expansion of the relative scale of production of electric energy at thermal electric-power stations.

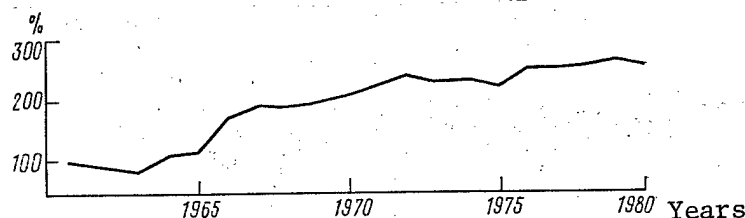


Fig. 2. Dynamics of the coefficient of direct expenditures of electric energy for the output of transportation (in percentages to 1960).

In the 1970's the decrease in the rates of development of electric energy production and the absolute reduction of petroleum and gas production in the republic considerably weakened the tendencies of consumption of the fuel and energy resources of the 1960's.

2. There was a noticeable intensification of the process of industrialization of the basic branches of the republic's national economy: agriculture, construction, food industry, etc. The expansion of the scale of the production of electric energy and petroleum products created the conditions for the intensification of agricultural production and for raising the level of mechanization and automation of construction operations.

3. The prerequisites for the reorganization of the energy base of transportation appeared. The increased activity in the process of the electrification of railroad lines in the second half of the 1960's greatly increased the expenditure of electric energy, with coal fuel being crowded out of that sphere. As a result of the outstripping development of motor transportation, the expenditure of liquid fuel in transportation increased at accelerated rates.

The basic features characterizing the shifts in the distribution of agricultural output are the changes in the level of expenditure of those raw-material resources in the branches of light and food industry. The analysis of the interbranch links must also include the flows of chemical products in the republic's national economy, inasmuch as a considerable part of the shifts that are occurring are directly linked with the distribution of such types of output in the branch as chemical fertilizers, synthetic fibers,

etc. The dynamics of the coefficients of expenditures of agricultural raw materials in light and food industry are shown in Fig. 3.

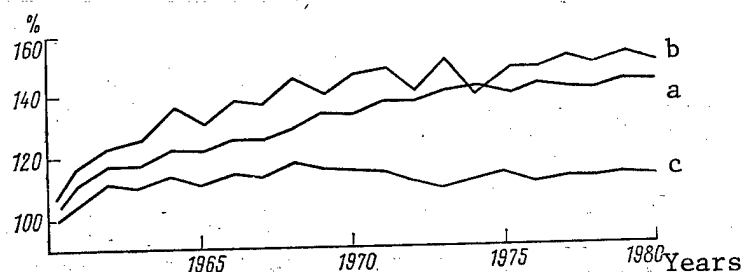


Fig. 3. Dynamics of the coefficient of direct expenditures of agricultural raw materials (in percentages to 1960) for the output of:

a - the food industry; b -- agriculture (intrabranh turnover);
c - light industry.

The overwhelming part of the production of gross output in food industry (approximately 80 percent) is based on the processing of traditional types of agricultural raw materials in which the republic specializes (tea, grapes, etc.).

Correspondingly the level of consumption of the output of agriculture in the food industry is formed chiefly depending upon the gross volumes of the production of individual agricultural crops. Confirmation of this is provided by an analysis of the dynamics of the coefficients of expenditures, which are typified by a comparatively stable tendency toward increase, following an increase in the volume of agricultural production.

Considerable structural changes occurred during the past decade along other very important directions of the use of agricultural output. This pertains first of all to the rise in the level of the intrabranh consumption of products of agricultural processing. The acceleration of the rates of development of animal husbandry and the increase of its percentage in the overall volume of production of agricultural output required the expansion and improvement of the fodder base, and the use within the branch of a considerable part of the agricultural material resources. This process was especially intensified in the 1970's, as can be graphically seen from the dynamics of the indicator of the intrabranh turnover of agricultural output (see Fig. 3). Whereas during the 1960's that indicator was characterized by partial deviations from the average level, during recent years it is described by a stable ascending line.

On the basis of the rapid upsurge in animal-husbandry production, there was an increase in the shipments of wool to light industry. Despite the fact that the republic's production of wool only partially covers the needs of the branches in light industry for raw materials, the increase in the volume of

shipments of this kind of output attests to the definite progressive shifts in this area.

The coefficient of direct expenditures of agricultural raw materials for the output of light industry during recent years changed unevenly. During the 1960's, as a result of the development by outstripping rates of such branches as the wool and knitting industry, there was an increase in the relative scale of the consumption of agricultural raw materials. This found its reflection in the definite stabilization of the dynamics of the corresponding coefficient of expenditures.

Let us examine in more detail the consequences of the shifts in the production and distribution of the output of chemical industry.

The basic structural shifts in the interbranch distribution of material resources, which shifts were linked with the chemicalization of the national economy, were expressed in the following.

1. The outstripping development of the republic's chemical industry from the beginning of the 1960's created a solid material base for the further growth of agricultural production. The limited nature of the areas of land suitable for agricultural use and the opportunities for involving additional manpower in the production sphere promoted the intensification of agricultural production in the republic. One of the important factors of its intensive development was the intensification of the process of chemicalization of agricultural production, in particular the increase in the shipments of mineral fertilizers. The acceleration of this process is attested to by the dynamics of the coefficient of expenditure of chemical output in agriculture (Fig. 4).

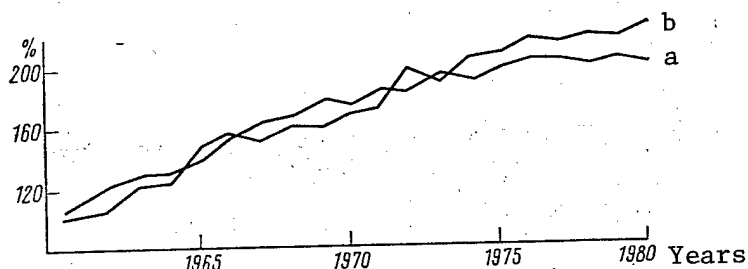


Fig. 4. Dynamics of the coefficient of direct expenditures of chemical output (in percentages to 1960) in:

a - agriculture; b - light industry.

Analysis of these dynamics makes it possible to ascertain a definite underlying law in the relationship between the increase in the volume of delivery of

mineral fertilizers to agriculture and the growth of production of output in the branch, especially since the end of the 1960's. Hence one can conclude that the accelerated development of the chemical industry largely contributed to the balancing of the needs for the increase in commodity turnover, the development of the republic's food industry with the necessary material resources by means of increasing the volume of production of the corresponding agricultural products.

2. The increase in the scale of production of chemical output large contributed to the regulation of the raw-materials base of light industry. The nature of the effect of the flows of chemical output on the level of the expenditures of agricultural raw materials in light industry had a double nature.

First, the acceleration of the process of the chemicalization of agricultural production had as a direct result the increase in the gross volume of the output in the branch, including animal husbandry (the increase in the fodder base and the enrichment of its structure), and this, in its turn, contributed to the increase in the consumption of its output in light industry.

Secondly, the consumption of chemical materials in light industry created the conditions for replacing the agricultural output received by light industry. This process manifests itself most graphically in the expansion of the consumption of chemical fiber in textile production.

As was shown by an analysis of the dynamics of the flows of material resources, the maintenance of the structural shifts that have occurred can be explained by the effect of the totality of interrelated factors. In individual situations the factors that move into the foreground are the ones that are influenced by the need to achieve a definite level of the final consumption of a particular product, and by the needs of technical progress (the assimilation of the production of new types of articles; the modernization of production; and the improvement of technological processes; etc.), as well as by the needs in balancing the developing of individual branches and subdivisions of social production on the basis of an increase in the volume of individual types of material resources.

Let us examine equations for the distribution of the most important material resources, which equations were computed on electronic computers.

The data selected as the object of analysis for the distribution equations, as well as for the dynamics of the coefficients of material expenditures, were the basic groups of flow equations, which groups characterize the distribution in the GSSR national economy in 1961-1980 of energy resources and agricultural raw materials (including the flows that are affiliated with them).

The factorial interrelations for the distribution of energy resources are characterized by the following equations*:

* The coefficient of variation $V = \frac{\sigma}{\bar{y}}$, where σ is the average-quarterly deviation, and \bar{y} is the average value of the resulting flow. The Darbin-Watson coefficient (DW) characterizes the level of autocorrelation of the deviations between the computed and the actual values of the resulting flow.

$$\begin{aligned}
X_{0301} &= 11,448 + 0,4993X_{03} + 0,066X_{01} \\
&\quad (V = 2,08; DW = 1,4); \\
X_{0304} &= -4,8332 + 0,0118X_{03} + 0,2015X_{04} - 0,3720X_{0301} \\
&\quad (V = 2,09; DW = 1,6); \\
X_{0401} &= 19,9335 + 0,6777X_{04} + 0,0912X_{01} - 6,3746 \\
&\quad (V = 2,1; DW = 1,7),
\end{aligned}$$

where X_{01} is ferrous metallurgy, X_{03} is fuel industry, X_{04} is electric-energy industry, X_{06} is chemical industry, X_{10} is light industry, X_{11} is food industry, X_{14} is agriculture, and X_{15} is transportation.

The equations that are given indicate: a) the substantial balance-sheet interrelations between the flows of fuel (coal) into ferrous metallurgy and electric-energy industry; the increase in the scale of the application of coal in ferrous metallurgy (X_{0301}) limits the volume of its deliveries to electric-energy industry (X_{0304}); b) the high degree of the factorial dependence of the flows of fuel into the electric-energy industry upon the necessary volume of production of electric energy (X_{04}); c) the limiting effect of the resources upon the consumption of electric energy in ferrous metallurgy (X_{0401}).

In the equations that were computed by us for the interaction of the flows of material resources that are linked with the processing of agricultural raw materials, one observes a stronger dependence of the flows of the agricultural output into the food and light industry upon the volume of the resource (X_{14}) and the demand on the part of the particular branches (X_{10} , X_{11}):

$$\begin{aligned}
X_{1410} &= -7,6726 + 0,111X_{14} + 0,256X_{10} \\
&\quad (V = 6,1; DW = 1,03); \\
X_{1411} &= -729,043 + 0,4468X_{14} + 0,6265X_{11} \\
&\quad (V = 6,1; DW = 1,9).
\end{aligned}$$

Inasmuch as there exists a high degree of dependence of the development of the republic's food industry upon the available agricultural raw-material resources, a corresponding need exists for the definite stabilization of the flows of the appropriate products into the particular branch. During the entire period being analyzed, the republic's agriculture developed at dissimilar rates. The average annual rates of increase in the output in the branch were delayed in individual years as a result of the unfavorable weather conditions. The planned redistribution of the intrabranh resources contributed to the guaranteeing of the necessary volumes of flows of agricultural raw-material resources into the food industry.

Thus, by means of the flow that characterizes the intrabranh consumption of output, one achieves the regulation of the raw-material base of the food industry:

$$X_{1414} = 107,1 + 0,0135X_{14} - 0,2619X_{1411}$$

$$(V = 0,03; DW = 2,2).$$

The insufficiently close relationship between the intrabranh turnover and the agricultural resources attests to the tendency toward the stabilization of the level of their consumption by the food industry.

The overall system of distribution of the output of agriculture includes the flow of agricultural output into light industry. The flow of chemical output into light industry compensates as follows for the shortage of agricultural raw materials:

$$X_{1410} = -2,6651 + 0,1588X_{14} - 0,254X_{0610}$$

$$(V = 6,05; DW = 1,6).$$

The equation data can be included in an overall system of equations for the model of interbranch interactions that was developed with a consideration of the specifics in the development of the economy of the union republic.

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